					LCR Co	oho ESU: Co	ast Stratum														
								Gr	rays	Eloch	oman	Mill	Creek	Youn	gs Bay	Big (Creek	Clats	kanie	Scap	oose
ID	Ecological Concern	Alternate Terms	ID	Ecological Concern Sub-Category	Threat	OR Plan Code	WA Plan Terms	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est
			1.1	Anthropogenic Barriers (dams)	Large Dams	4a, 4b, 6g	Obstructions														
1	labitat Quantity	Connectivity, Access, Structure, Simplification, Availability	1.2	Anthropogenic Barriers (other)	Hatchery Weirs, Road Crossings, Small Dams, Diversions	4c, 4d, 4e	Obstructions							Х		Х					
			1.3	Natural Barriers	Water Falls, Sand Bar, Bar Breach, Log Jams, Steep Gradient		Obstructions														
			2.1	Turbine/bypass mortality	Dams																
			2.2	Predation		8a, 8b, 8c, 8d	Predation	Х	Х	Χ	Х	Χ	Χ								
		Dundeston Disease Species	2.2.a	Predation (non-salmonid fish, marine mamals)	Dams	8a, 8d															
2 [Direct Mortality	Predation, Disease, Species Interactions	2.2.b	Predation (birds)	Land use	8b									Χ		Χ		Χ		Χ
			2.2.c	Predation (hatchery fish)	Hatcheries	8c															
			2.3	Pathogens	Disease, Sea Lice		Pathogens	3													
			2.4	Harvest	Consumptive, targeted fishery/gillnet fisheries targeted at other species	7a, 7b	Harvest		Х		х		Х		х		х		х		х
3 T	oxic Contaminants	Pollution	3.1	water	Industrial Practices	9c, 9d	Chemicals								Х		Х		Х		Х
			3.2	Biota	Agricultural Chemicals, Urban and Industrial Practices	9c, 9d	Chemicals								Χ		Х		Χ		Х
			4.1	Altered Primary Productivity	Dam Reservoirs	3a, 3b	Food	3		?		?			Х		Х		Х		Х
4 F	-nnd	Competition, Prey Availability, Species Interactions	4.2	Competition	Smolts from all Columbia Basin hatcheries	1a	Competition	?		?		?			Χ		Χ		Χ		Χ
		cpeolos interastions	4.3	Altered Prey Composition and Diversity	Prey species/other species harvest		Food	?		?		?									
			5.1		Past and/or currrent land use practices	6e, 6f	Channel stability, habitat diversity, key habitat	х		х		х		х		х		х		х	
5 F	Riparian Condition	Impaired Riparian Function/Condition, Microclimate, Lack of Shade	5.2	LWD Recruitment		6e, 6f	Channel stability, Flow, Habitat Diversity	Х		х		х		х		х		х		х	
			5.2.b	LWD Recruitment	Past and/or currrent land use practices																
			5.2.a	LWD Recruitment	Dams		Channel state litter														
			6.1	Side Channel and Wetland Conditions	Past and/or currrent land use practices/transportation corridor	6e, 6f	Channel stability, habitat diversity, key habitat	х		Х		Х		х		х		Х		Х	
			6.2	Floodplain Condition	Past and/or currrent land use practices/transportation corridor	6e, 6f	Channel stability, habitat diversity, key habitat	х		Х		Х		х		Х		Х		X	
		High quality over-winter rearing	6.3	Estuary Conditions		3a, 3b, 5b, 6c, 6e	Food, Channel stability, habitat diversity, key habitat, flow		Х		Х		Х								
	Peripheral and	habitat, Habitat Diversity, (Key) Habitat Quantity/Quality, Refugia	6.3.a	Competition from hatchery smolts	Hatcheries	1a									Х		Х		Χ		Х
	ransitional Habitats	Habitat Quantity/Quality, Refugia Habitat	6.3.b	Reduced macrodetrital inputs	Dam reservoirs	3a									Х		Х		Х		Х
		[6.3.c	Increased microdetrital inputs	Dam reservoirs	3b									Х		Х		Х		Х
			6.3.d	Altered plume dynamics	Dams	5b									Х		Х		Х		Х
			6.3.e	Impaired sediment/sandf routing	Dams	6c									Х		Х		Х		Х
		ļ	6.3.f	Estuary habitat quality (complexity and diversity)	Dams	6e									Х		Х		Х		Х
			6.4	Nearshore Conditions																	

					LCR C	oho ESU: Co	ast Stratum														
ID	Ecological Concern	Alternate Terms	ID	Ecological Concern Sub-Category	Threat	OR Plan Code	WA Plan Terms	G	rays	Eloch	oman	Mill (Creek	Young	js Bay	Big (Creek	Clats	kanie	Scap	oose
L	Leological concern	Alternate Terms	10	Ecological Concern Sub-Sategory	Tineat	OK Flair Code		Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est
7	Channel Structure	Channel Conditions, Channel Form, Channel morphology, Channel Instability, Channel Stability, Loss	7.1	Bed and Channel Form	Past and/or currrent land use practices/transportation corridor	6e, 6f, 6g, 5b	Channel stability, habitat diversity, key habitat, flow	Х	Х	х	Х	х	Х	х	х	х	х	х	х	х	Х
	and Form	of Spawning Substrate due to high flow, Bedload Movement	7.2	Instream Structural Complexity	Past and/or currrent land use practices	6e, 6f, 6g, 5b	Channel stability, habitat diversity, key habitat, flow	X	Х	х	Х	Х	Х	х	Х	х	Х	х	Х	Х	х
		Sediment, Stream Spawning	8.1	Sediment Quantitiy		6a, 6b, 6c, 6d	Sediment	х		х		х									
8	Sediment Conditions	Habitat, Spawning Gravel, Beach Spawning Habitat (lake), Substrate, Benthic Habitat	8.1.a		Dams	6c, 6d									х		х		х		х
			8.1.b	Increased Sediment Quantity	Past and/or currrent land use practices/transportation corridor	6a, 6b								Χ		Χ		Χ		Х	
			9.1	Temperature	i i	9a, 9b	Temperature	Х		Χ		Χ									
			9.1.a	Temperature (land use)	Land uses that impair riparian function/decrease streamflow	9a								Χ	Х	Х	Х	Х	Х	Х	Х
			9.1.b	Temperature (dam reservoirs)	Large dam reservoirs	9b									Χ		Χ		Χ		Χ
9	Water Quality		9.2	Oxygen	Agricultural Chemicals, Urban and Industrial Practices		Oxygen														
			9.3	Turbidity		6a, 6b	Sediment	Х		Х		Х									
			9.3.a	Decreased Turbidity (dams)	Dams	6c									Х		Х		Х		Х
			9.3.b	Increased Turbidity (land use)	Land use/rural roads	6a, 6b								Χ		Χ		Χ		Χ	
			9.4	pН																	
			9.5	Salinity			Salinity														
			10.1	Altered Hydrology		5a, 5b, 5c	Flow	Х		Χ		Χ									
			10.1.a	Altered Hydrology	Past and/or currrent land use practices/transportation corridor	5c								Х		Х		Х		Х	
			10.1.b	Altered Hydrology	Dams	5a, 5b									х		х		х		х
10	Water Quantity	Changes in Flow Regime, Spring Freshets, Piped Outfalls of Surface and Ground Water, Withdrawals,	10.2	Decreased Water Quantity		5a, 5b, 5d, 5e, 5f	Flow	Х		Х		Х									
		Flow-Related Plume Changes	10.2.a	Decreased Water Quantity	Low-head hydro diversions, dams	5a, 5b									Х		Х		Х		Х
			10.2.b	Decreased Water Quantity	Irrigation and municipal withdrawals	5d, 5e										Х					
			10.2.c	Decreased Water Quantity	Hatchery withdrawals	5f															
			10.3	Altered Flow Timing		5b, 5c	Flow	Х		Χ		Χ									
			10.3a	Altered Flow Timing		5b				-		-			Х		Х		Х		Х
			10.3.b	Altered Flow Timing	Land use	5c								Х		Х		Х		Х	
			11.1	Impaired abundance and diversity (targeted fishing)	Consumptive, targeted fishery	7a	Harvest		X		X		Х		X		Х		X		Х
11	Population Diversity	Genetic drift, loss of genetic diversity, artificail selection by hatchery personnel interbreeding	11.2	Impaired abundance and diversity (non- targeted fishing)	species	7b	Harvest														
			11.3	Impaired productivity and diversity	Stray hatchery fish interbreeding with wild fish	7c		Х		Х		Х		Х		Х		Χ			

									LCR C	oho E	SU: Ca	ascade	e Strati	um																					
		Alta	ID E	5l	Thoras	00 Di 0 . I .	WA Disc. Towns	Clack	amas	San	dy	Lower C	Cowlitz	Cowe	eman	Toutle	e (SF)	Toutle	(NF)	Upper C	owlitz	Lewis	(EF)	Lewis	(NF)	Salmoi	n Creek	Cis	ous	Tilt	ton	Kalar	ma	Washo	ugal
ID	cological Concern	Alternate Terms	וט נו	Ecological Concern Sub-Category	Threat	OR Plan Code	WA Plan Terms	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est
			1.1 Ant			4a, 4b, 6g	Obstructions	Х												х				Х				х		х					
1	bitat Quantity	Connectivity, Access, Structure, Simplification, Availability	1.2 Ant	thropogenic Barriers (other)	Hatchery Weirs, Road Crossings, Small Dams, Diversions	4c, 4d, 4e	Obstructions	Х																											
			1.3 Nat		Water Falls, Sand Bar, Bar Breach, Log Jams, Steep Gradient		Obstructions																												
			2.1 Tur	rbine/bypass mortality	Dams																														
			2.2 Pre	edation		8a, 8b, 8c, 8d	Predation					Х	Χ	Х	Χ	Х	Х	Х	Х	Х	Х	Χ	Х	Х	Χ	Х	Х	Х	Χ	Х	Χ	Х	Х	Х	Χ
		Predation, Disease, Species		edation (non-salmonid fish, marine amals)	Dams	8a, 8d																													
2	ect Mortality	Interactions	2.2.b Pre	edation (birds)	Land use	8b			Χ		Χ																					i			
			2.2.c Pre	edation (hatchery fish)	Hatcheries	8c																										i t			
			2.3 Pat	thogens	Disease, Sea Lice		Pathogens					?	?							?	?			?	?	?	?	?	?			?	?	?	?
				un cont	Consumptive, targeted fishery/gillnet fisheries targeted at other species	7a, 7b	Harvest		х		х		х		х		х		х		х		х		х		х		х		х		Х		х
3 1	xic Contaminants	Pollution	3.1 Wa	ater	Industrial Practices	9c, 9d	Chemicals		Х		Х																								
			3.2 Bio	ota	Agricultural Chemicals, Urban and Industrial Practices	9c, 9d	Chemicals		Χ		Χ																								
			4.1 Alte			3a, 3b	Food		Х		Х	?		?		?		?		?		?		?		?		3		?				?	
4 F	od	Competition, Prey Availability, Species Interactions	4.2 Cor	ompetition	Smolts from all Columbia Basin hatcheries	1a	Competition		Χ		Х	?				?		?		?		?		?		?		?						?	
			4.3 Alte	ered Prey Composition and versity	Prey species/other species harvest		Food					?		?		?		?		?		?		?		?		?		?				?	
			5.1 Rip	parian Condition	Past and/or currrent land use practices	6e, 6f	Channel stability, habitat diversity, key habitat	х		х		х		х		х		х		х		х		х		х		Х		х		х		х	
5 F	parian Condition	Impaired Riparian Function/Condition, Microclimate, Lack of Shade	5.2 LW	VD Recruitment		6e, 6f	Channel stability, Flow, Habitat Diversity	Х		х		х		х		х		х		х		Х		Х		х		Х		х		Х		Х	
					Past and/or currrent land use practices																														
\sqcup			5.2.a LW	VD Recruitment	Dams		0111]
			6.1 Sid	de Channel and Wetland Conditions	Past and/or currrent land use practices/transportation corridor	6e, 6f	Channel stability, habitat diversity, key habitat	Х		Х		Х		Х		Х		Х		Х		Х		Х		Х		Х		Х		Х		Х	
			6.2 Flo		Past and/or currrent land use practices/transportation corridor	6e, 6f	Channel stability, habitat diversity, key habitat	х		Х		х		Х		Х		Х		Х		X		х		Х		Х		Х		Х		Х	
		High quality over-winter rearing	6.3 Est	tuary Conditions		3a, 3b, 5b, 6c, 6e	Food, Channel stability, habitat diversity, key habitat, flow						Х		Х		Х		Х		Х		Х		Χ		Х		Χ		Х		Х		Х
	ripheral and ansitional Habitats	habitat, Habitat Diversity, (Key) Habitat Quantity/Quality, Refugia	6.3.a Cor	empetition from hatchery smolts	Hatcheries	1a			Χ		Χ																								
	anational Maditals	Habitat Quantity/Quality, Refugia Habitat	6.3.b Rec	duced macrodetrital inputs	Dam reservoirs	3a			Х		Х																								
			6.3.c Inci	creased microdetrital inputs	Dam reservoirs	3b			Х		Х																								
			6.3.d Alte	ered plume dynamics	Dams	5b			Х		Х																								
			6.3.e Imp	paired sediment/sandf routing	Dams	6c			Х		Х																					T			
				tuary habitat quality (complexity and versity)	Dams	6e			Χ		Χ																								
		<u> </u>	6.4 Nea	earshore Conditions																												▔			

									LCR (Coho E	SU: C	ascad	e Strat	um																					
ID	Ecological Concern	Alternate Terms	ID	Ecological Concern Sub-Category	Threat	OR Plan Code	WA Plan Terms	Clac	kamas	Sa	ndy	Lower	Cowlitz	Cowe	eman	Toutle	e (SF)	Toutle	(NF)	Upper C	owlitz	Lewis	(EF)	Lewis (NF)	Salmon C	Creek	Cispu	us	Tilto	on	Kalam	na	Washo	ugal
Ĺ	2001091041 001100111	/ into mate 10 mile		zoologica: collectifi caz category		011 1 1411 0040	11711 (411 1 011110	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est
7	Channel Structure	Channel Conditions, Channel Form, Channel morphology, Channel Instability, Channel	7.1	Bed and Channel Form	Past and/or currrent land use practices/transportation corridor	6e, 6f, 6g, 5b	Channel stability, habitat diversity, key habitat, flow	х	х	х	х	х	Х	х	Х	х	Х	х	Х	х	Х	х	Х	х	х	х	Х	х	Х	х	Х	x	Х	х	Х
	and Form	Stability, Loss of Spawning Substrate due to high flow, Bedload Movement	7.2	Instream Structural Complexity	Past and/or currrent land use practices	6e, 6f, 6g, 5b	Channel stability, habitat diversity, key habitat, flow	х	х	х	х	х	Х	х	Х	х	Х	х	Х	х	Х	х	Х	х	х	x	Х	х	Х	х	х	x	Х	х	Х
		0	8.1	Sediment Quantitiy		6a, 6b, 6c, 6d	Sediment					Х		Х		Х		X		X		Х		X		X		X		Х		Χ		Χ	
8	Sediment Conditions	Sediment, Stream Spawning Habitat, Spawning Gravel, Beach	8.1.a	Decreased Sediment Quantity	Dams	6c, 6d			Х		Х																								
Ĺ		Spawning Habitat (lake), Substrate, Benthic Habitat	8.1.b	Increased Sediment Quantity	Past and/or currrent land use practices/transportation corridor	6a, 6b		Х		Х																									
			9.1	Temperature		9a, 9b	Temperature					Χ		Χ		Χ		Χ		Χ		Х		Χ		Χ		Χ		Χ		Χ		Χ	
			9.1.a	Temperature (land use)	Land uses that impair riparian function/decrease streamflow	9a		Х	Х	Х	Х																	\Box					\Box		
			9.1.b	Temperature (dam reservoirs)	Large dam reservoirs	9b		Х	Х	Х	Х																								
9	Water Quality		9.2	Oxygen	Agricultural Chemicals, Urban and Industrial Practices		Oxygen																												
			9.3	Turbidity		6a, 6b	Sediment					Х		Х		Х		Х		Х		Х		Х		Х		Х		Х		Χ		Χ	
			9.3.a	Decreased Turbidity (dams)	Dams	6c			Х		Х																			\longrightarrow	\longrightarrow				
			9.3.b	Increased Turbidity (land use)	Land use/rural roads	6a, 6b		Χ		Χ																									
			9.4	pН																										\Box					
			9.5	Salinity			Salinity																			_	\rightarrow		\longrightarrow			\longrightarrow			
			10.1	Altered Hydrology		5a, 5b, 5c	Flow					Х		Х		Х		Х		Х		Х		х		Х		Х		х		x		х	
			10.1.a	Altered Hydrology	Past and/or currrent land use practices/transportation corridor	5c		Х		Χ																									
			10.1.b	Altered Hydrology	Dams	5a, 5b			Х		Х																			.					
10	Water Quantity	Changes in Flow Regime, Spring Freshets, Piped Outfalls of Surface	10.2	Decreased Water Quantity		5a, 5b, 5d, 5e, 5f	Flow					Χ		Χ		Χ		Χ		Χ		Χ		Χ		Χ		Χ		Х		Х		Х	
"	-	and Ground Water, Withdrawals, Flow-Related Plume Changes	10.2.a	Decreased Water Quantity	Low-head hydro diversions, dams	5a, 5b			Х		Х																								
			10.2.b	Decreased Water Quantity	Irrigation and municipal withdrawals	5d, 5e																													
			10.2.c	Decreased Water Quantity	Hatchery withdrawals	5f																													
			10.3	Altered Flow Timing		5b, 5c	Flow					Χ		Χ		Χ		Х	T i	Χ		Х		Χ		Χ		Χ		Х		Х		Х	
			10.3a	Altered Flow Timing	Dams	5b			Х		Х																								
	<u> </u>		10.3.b	Altered Flow Timing	Land use	5c		Χ		Χ								T									T			T					
		Compating dutifity to the contract of the cont	11.1	Impaired abundance and diversity (targeted fishing)	Consumptive, targeted fishery	7a	Harvest		Х		Х		Х		Х		Х		Х		Х		Х		Х		Х		Х		Х		Х		Х
11	Population Diversity	Genetic drift, loss of genetic diversity, artificall selection by	11.2	Impaired abundance and diversity (non- targeted fishing)	Gill net fisheries targeted at other species	7b	Harvest																												
		hatchery personnel interbreeding	11.3	Impaired productivity and diversity	Stray hatchery fish interbreeding with wild fish	7c		Х				Х		Χ		Х		Х		Х		Χ		Χ		Х		Х		Х		Х		Х	
				,,,,	wild fish									Λ.		^		Λ.		Λ.		Λ.		Λ.											_

					LCR C	oho ESU: Gorge Stratum								
1 1 1 1 1 1 1 1 1 1	ID	Ecological Concern	Alternate Terms	ID			OR Plan Code	WA Plan Terms	Lower	Gorge	Gorge	/White	Upper Go	rge/Hood
1 Nabida Quantity		-							Trib	Est			Trib	Est
1-3 Natural Barriers Marker Falls, Sauré Barr, Barr Branch, Log James, Sauce Discriptions 1-1 Natural Barriers Marker Falls, Sauré Barr, Barr Branch, Log James, Sauce Discription 1-1				1.1	Anthropogenic Barriers (dams)	Large Dams	4a, 4b, 6g	Obstructions			Х		Х	
2 2 Direct Mortality Precision, Disease, Spocies stretrictions 2.2 Predation (President) (1	Habitat Quantity		1.2	Anthropogenic Barriers (other)	Hatchery Weirs, Road Crossings, Small Dams, Diversions	4c, 4d, 4e	Obstructions	Х				Х	
2 Predation, Disease, Species Interactions 1 2 Predation 2 2				1.3	Natural Barriers			Obstructions						
2 Direct Mortality				2.1	Turbine/bypass mortality	Dams								
2 Direct Mortality Production, Diseases, Species Interactions 2.2				2.2			8a, 8b, 8c, 8d	Predation			Χ	Χ		Χ
2.2.b Production (infrat) Land use 85			Predation Disease Species	2.2.a		Dams	8a, 8d						Х	
2.3 Pathogens Disease, Sea Lice	2	Direct Mortality		2.2.b	Predation (birds)	Land use	8b			Χ			Χ	
2.4 Narvest Consumptive, targeted fishery/gillinet 7a, 7b Narvest				2.2.c	Predation (hatchery fish)	Hatcheries	8c							
Tould Contaminants				2.3	Pathogens	Disease, Sea Lice		Pathogens						
Toxic Contaminants Pollution 1. Water 1. Wa				2.4	Harvest		7a, 7b	Harvest		х				Х
4.1 Proof Primary Productivity Dam Reservoirs 3, 3, 3b Proof X X X X X X X X X X X X X X X X X X	3	Toxic Contaminants	Pollution	3.1	Water		9c, 9d	Chemicals		Х			Х	Х
Competition, Prey Availability, Species Interactions 4.2 Competition hashbacteries 4.3 Altered Prey Composition and Prey species barvest 5.4 Altered Prey Composition and Prey species barvest Food Channel stability, Flow, habitat diversity, key habitat Fee great cest/ransportation corridor Fee great cest/ransportation corridor Fee great cest/ransportation corridor Food, Channel stability, habitat diversity, key habitat Food, Channel stability, habitat diversity, key habitat, flow Food, Channel stability, habitat diversity, key habitat, flo				3.2	Biota	1 -	9c, 9d	Chemicals		Χ			Χ	Χ
Species Interactions 4.2 Competition Antacheries A As A X X X X A A Actered Prey Composition and Diversity 5.1 Riparian Condition Function/Condition, Microclimate, Lack of Shade 5.2 LWD Recruitment 5.2 LWD Recruitment 5.2 LWD Recruitment 6.1 Side Channel and Wetland Conditions 6.2 Floodplain Condition 8.3 Estuary Conditions 8.3 Estuary Conditions 8.3 Estuary Conditions 8.3 Estuary Conditions 8.3 Competition Antacheries A X X X X X X X X X X X X X X X X X X X				4.1	Altered Primary Productivity	Dam Reservoirs	3a, 3b	Food		Х				Χ
A.3 Altered Prey Composition and Prey species harvest Prey species form species for species harvest Prey species form species for species harvest Prey species form species for species harvest Prey species for spe	4	Food		4.2	Competition	1	1a	Competition		Χ			Х	Х
Riparian Condition FunctionCondition, Microclimate, Lack of Shade 5.2 LWD Recruitment 5.2 LWD Recruitment 5.2 LWD Recruitment 5.3 LWD Recruitment 5.4 LWD Recruitment 5.5			Species interactions	4.3				Food						
Function/Condition, Microclimate, Lack of Shade 5.2 LWD Recruitment				5.1	Riparian Condition	Past and/or currrent land use practices	6e, 6f	habitat diversity, key			х		х	
S.2.a LWD Recruitment Dams Channel stability, habitat diversity, key habitat	5	Riparian Condition	Function/Condition, Microclimate,	5.2	LWD Recruitment		6e, 6f	• • • • • • • • • • • • • • • • • • • •			Х		Х	
6.1 Side Channel and Wetland Conditions Past and/or currrent land use practices/transportation corridor Sa, 3b, 5b, 6c, 6e for Channel stability, habitat diversity, key habit				5.2.b	LWD Recruitment	Past and/or currrent land use practices								
6.1 Side Channel and Wetland Conditions Past and/or currrent land use practices/transportation corridor 6e, 6f habitat diversity, key habitat diversit				5.2.a	LWD Recruitment	Dams								
Peripheral and Transitional Habitats High quality over-winter rearing habitat Diversity, (Key) Habitat Diversity, (Key) Habitat Quantity/Quality, Refugia Habitat 6.2 Floodplain Condition Fast and/or current raind use practices/transportation corridor 8.3 Estuary Conditions 8.3 a, 3b, 5b, 6c, 6e Food, Channel stability, habitat diversity, key habitat, flow X X X X X X X X X X X X X				6.1	Side Channel and Wetland Conditions	1	6e, 6f	habitat diversity, key	x		Х		Х	
High quality over-winter rearing habitat, Habitat Diversity, (Key) Habitat Quantity/Quality, Refugia Habitat High quality over-winter rearing habitat, Habitat Diversity, (Key) Habitat Quantity/Quality, Refugia Habitat High quality over-winter rearing habitat, Habitat Diversity, (Key) Habitat Quantity/Quality, Refugia Habitat High quality over-winter rearing habitat, Habitat Diversity, (Key) Habitat Quantity/Quality, Refugia Habitat High quality over-winter rearing habitat, Habitat Diversity, (Key) Habitat, Habitat Diversity, (Key) Habitat Quantity/Quality, Refugia Hatcheries 1a X X X X X X A 4.3.a. Competition from hatchery smolts Bam reservoirs 3a X X X X X X A 4.3.a. Lincreased microdetrital inputs Dam reservoirs 3b X X X X X A A 4.3.a. Lincreased microdetrital inputs Dams 6c X X X X X X X X X X X X X				6.2	Floodplain Condition		6e, 6f	habitat diversity, key	X		х		х	
Peripheral and Transitional Habitats Habitat Quantity/Quality, Refugia Habitat Habitat Quantity/Quality, Refugia Habitat Habitat Habitat Quantity/Quality, Refugia Habitat Habitat Habitat Quantity/Quality, Refugia Habitat 6.3.a Competition from hatchery smolts Dam reservoirs 3a X X X X X X X X X X X X X X X X X X			High quality over-winter rearing	6.3	Estuary Conditions		3a, 3b, 5b, 6c, 6e	habitat diversity, key				Х		
Habitat	6		habitat, Habitat Diversity, (Key)	6.3.a	Competition from hatchery smolts	Hatcheries	1a			Χ				Χ
6.3.d Altered plume dynamics Dams 5b X X X 6.3.e Impaired sediment/sandf routing Dams 6c X X X 6.3.f Estuary habitat quality (complexity and diversity) Dams 6e X X X		Transidonal Habitats		6.3.b	Reduced macrodetrital inputs	Dam reservoirs	3a			Х				Х
6.3.e Impaired sediment/sandf routing Dams 6c X X X 6.3.f Estuary habitat quality (complexity and diversity) Dams 6e X X X				6.3.c	Increased microdetrital inputs	Dam reservoirs	3b			Х				Х
6.3.f Estuary habitat quality (complexity and diversity) Dams 6e X				6.3.d	Altered plume dynamics	Dams	5b			Х				Х
6.3.1 diversity) Dams 66 X				6.3.e	Impaired sediment/sandf routing	Dams	6c			Х				Х
urversity)				6.3.f		Dams	6e			Х				Х
				6.4										

				LCR C	oho ESU: Gorge Stratum								
ID	Ecological Concern	Alternate Terms	ID	Ecological Concern Sub-Category	Threat	OR Plan Code	WA Plan Terms	Lower	Gorge	Gorge	per /White mon	Upper Go	orge/Hood
								Trib	Est	Trib	Est	Trib	Est
7		Channel Conditions, Channel Form, Channel morphology, Channel Instability, Channel Stability, Loss	7.1	Bed and Channel Form	Past and/or currrent land use practices/transportation corridor	6e, 6f, 6g, 5b	Channel stability, habitat diversity, key habitat, flow	х	Х	Х	Х	Х	х
,	and Form	of Spawning Substrate due to high flow, Bedload Movement	7.2	Instream Structural Complexity	Past and/or currrent land use practices	6e, 6f, 6g, 5b	Channel stability, habitat diversity, key habitat, flow	х	х	х	Х	х	х
			8.1	Sediment Quantitiy		6a, 6b, 6c, 6d	Sediment			Х	Х		
		Sediment, Stream Spawning	8.1.a	Decreased Sediment Quantity	Dams	6c, 6d			Х				Х
8	Sediment Conditions	Habitat, Spawning Gravel, Beach Spawning Habitat (lake), Substrate, Benthic Habitat	8.1.b	Increased Sediment Quantity	Past and/or currrent land use practices/transportation corridor	6a, 6b						Х	
			8.1.c	Increased Sediment Quantity	Dam removal					Х			
			9.1	Temperature		9a, 9b	Temperature			Х	Х		
			9.1.a	Temperature (land use)	Land uses that impair riparian function/decrease streamflow	9a			Х			Х	Х
			9.1.b	Temperature (dam reservoirs)	Large dam reservoirs	9b			Χ				Х
9	Water Quality		9.2	Oxygen	Agricultural Chemicals, Urban and Industrial Practices		Oxygen						
	,		9.3	Turbidity		6a, 6b	Sediment			Χ	Χ		
			9.3.a	Decreased Turbidity (dams)	Dams	6c			Х				Х
			9.3.b	Increased Turbidity (land use)	Land use/rural roads	6a, 6b							
			9.4	рН									
			9.5	Salinity			Salinity						
			10.1	Altered Hydrology		5a, 5b, 5c	Flow			Х			
			10.1.a	Altered Hydrology	Past and/or currrent land use practices/transportation corridor	5c		Х				Х	
			10.1.b	Altered Hydrology	Dams	5a, 5b			Х			Х	Х
10		Changes in Flow Regime, Spring Freshets, Piped Outfalls of Surface	10.2	Decreased Water Quantity		5a, 5b, 5d, 5e, 5f	Flow			Χ			
10		and Ground Water, Withdrawals, Flow-Related Plume Changes	10.2.a	Decreased Water Quantity	Low-head hydro diversions, dams	5a, 5b			Х			Х	Х
			10.2.b	Decreased Water Quantity	Irrigation and municipal withdrawals	5d, 5e						Х	
			10.2.c	Decreased Water Quantity	Hatchery withdrawals	5f		Х					
			10.3	Altered Flow Timing		5b, 5c	Flow			Χ			
			10.3a	Altered Flow Timing	Dams	5b			Х				Х
			10.3.b	Altered Flow Timing	Land use	5c		Х				Χ	1 1
		Constitution of results	11.1	Impaired abundance and diversity (targeted fishing)	Consumptive, targeted fishery	7a	Harvest		Х				Х
11	Population Diversity	Genetic drift, loss of genetic diversity, artificall selection by hatchery personnel interbreeding	11.2	Impaired abundance and diversity (non- targeted fishing)	Gill net fisheries targeted at other species	7b	Harvest						
			11.3	Impaired productivity and diversity	Stray hatchery fish interbreeding with wild fish	7c		X				Х	

					LCR Chinook	ESU: Casca	de Spring Stratum														
								Sa	andy	Upper	Cowlitz	Cis	pus	Til	ton	То	utle	Kal	ama	Lew	ris (NF)
ID	Ecological Concern	Alternate Terms	ID	Ecological Concern Sub-Category	Threat	OR Plan Code	WA Plan Terms	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est
			1.1	Anthropogenic Barriers (dams)	Large Dams	4a, 4b, 6g	Obstructions	Х		х		х		х						х	
1	Habitat Quantity	Connectivity, Access, Structure, Simplification, Availability	1.2	Anthropogenic Barriers (other)	Hatchery Weirs, Road Crossings, Small Dams, Diversions	4c, 4d, 4e	Obstructions														
			1.3	Natural Barriers	Water Falls, Sand Bar, Bar Breach, Log Jams, Steep Gradient		Obstructions														
			2.1	Turbine/bypass mortality	Dams																
			2.2	Predation		8a, 8b, 8c, 8d	Predation		Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х
	Direct Mortality	Predation, Disease, Species	2.2.a	Predation (non-salmonid fish, marine mamals)	Dams	8a, 8d															
	Direct mortality	Interactions	2.2.b	Predation (birds)	Land use	8b															
1	1		2.2.c	Predation (hatchery fish)	Hatcheries	8c															
			2.3	Pathogens	Disease, Sea Lice		Pathogens			?		?		?						?	
			2.4	Harvest	Consumptive, targeted fishery/gillnet fisheries targeted at other species	7a, 7b	Harvest		Х		Х		Х		Х		Х		Х		Х
	Toxic Contaminants	Pollution	3.1	Water	Agricultural Chemicals, Urban and Industrial Practices	9c, 9d	Chemicals		Х												
	TOXIC CONTAININAITS	Foliation	3.2	Biota	Agricultural Chemicals, Urban and Industrial Practices	9c, 9d	Chemicals		Х												
			4.1	Altered Primary Productivity	Dam Reservoirs	3a, 3b	Food		Х											1	ļ.
4	Food	Competition, Prey Availability, Species Interactions	4.2	Competition	Smolts from all Columbia Basin hatcheries	1a	Competition		Х	?		?								?	
			4.3	Altered Prey Composition and Diversity	Prey species/other species harvest		Food			?		?		?						?	
			5.1	Riparian Condition	Past and/or currrent land use practices	6e, 6f	Channel stability, habitat diversity, key habitat	х		х		х		х		х		х		х	
5	Riparian Condition	Impaired Riparian Function/Condition, Microclimate, Lack of Shade	5.2	LWD Recruitment		6e, 6f	Channel stability, Flow, Habitat Diversity	х		Х		Х		Х		х		Х		Х	
			5.2.b	LWD Recruitment	Past and/or currrent land use practices																
	ļ		5.2.a	LWD Recruitment	Dams															<u> </u>	
			6.1	Side Channel and Wetland Conditions	Past and/or currrent land use practices/transportation corridor	6e, 6f	Channel stability, habitat diversity, key habitat	Х		Х		Х		Х		Х		Х		Х	
			6.2	Floodplain Condition	Past and/or currrent land use practices/transportation corridor	6e, 6f	Channel stability, habitat diversity, key habitat	х		Х		х		х		х		х		х	
			6.3	Estuary Conditions		3a, 3b, 5b, 6c, 6e	Food, Channel stability, habitat diversity, key habitat, flow				х		х		х		х		х		х
6	Peripheral and	High quality over-winter rearing habitat, Habitat Diversity, (Key) Habitat	6.3.a	Competition from hatchery smolts	Hatcheries	1a			Х												
	Transitional Habitats	Quantity/Quality, Refugia Habitat	6.3.b	Reduced macrodetrital inputs	Dam reservoirs	3a			Х												
			6.3.c	Increased microdetrital inputs	Dam reservoirs	3b			Х												<u> </u>
			6.3.d	Altered plume dynamics	Dams	5b			X								1			$\overline{}$	
			6.3.e	Impaired sediment/sandf routing	Dams	6c			X								1				\vdash
			6.3.f	Estuary habitat quality (complexity and	Dams	6e			X											\vdash	
	ĺ		6.4	diversity) Nearshore Conditions			-					 	 		-		 	 			├ ──
	l		6.4	Nearshore Conditions	l							l						l			

					LCR Chinook	ESU: Casca	de Spring Stratum														
								Sa	ndy	Upper	Cowlitz	Cis	pus	Tilt	ton	Tou	utle	Kala	ama	Le	wis
ID	Ecological Concern	Alternate Terms	ID	Ecological Concern Sub-Category	Threat	OR Plan Code	WA Plan Terms	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est
7	Channel Structure and	Channel Conditions, Channel Form, Channel morphology, Channel Instability, Channel Stability, Loss of	7.1	Bed and Channel Form	Past and/or currrent land use practices/transportation corridor	6e, 6f, 6g, 5b	Channel stability, habitat diversity, key habitat, flow	х	х	х	х	х	х	х	х	х	х	х	х	х	х
		Spawning Substrate due to high flow, Bedload Movement	7.2	Instream Structural Complexity	Past and/or currrent land use practices	6e, 6f, 6g, 5b	Channel stability, habitat diversity, key habitat, flow	х	х	х	Х	х	Х	х	Х	х	Х	х	Х	х	Х
			8.1	Sediment Quantitiy		6a, 6b, 6c, 6d	Sediment			Х		Х		Х		Х		Х		Х	
8	Sediment Conditions	Sediment, Stream Spawning Habitat, Spawning Gravel, Beach Spawning	8.1.a	Decreased Sediment Quantity	Dams	6c, 6d		Х	Х												
°	Seament Conditions	Habitat (lake), Substrate, Benthic Habitat	8.1.b	Increased Sediment Quantity	Past and/or currrent land use practices/transportation corridor	6a, 6b		Х													
			9.1	Temperature		9a, 9b	Temperature							X		Х		Χ		Χ	
			9.1.a	Temperature (land use)	Land uses that impair riparian function/decrease streamflow	9a			Χ												
			9.1.b	Temperature (dam reservoirs)	Large dam reservoirs	9b			Χ												
			9.2	Oxygen	Agricultural Chemicals, Urban and Industrial Practices		Oxygen														
9	Water Quality		9.3	Turbidity		6a, 6b	Sediment			Х		Х		Х		Х		Х		Х	
			9.3.a	Decreased Turbidity (dams)	Dams	6c			Х												
			9.3.b	Increased Turbidity (land use)	Land use/rural roads	6a, 6b		Χ													
			9.4	pH																	
			9.5	Salinity			Salinity													<u> </u>	
			10.1	Altered Hydrology		5a, 5b, 5c	Flow			Х		Х		Х		Х		Х		Х	
			10.1.a	Altered Hydrology	Past and/or currrent land use practices/transportation corridor	5c		Х													
		Changes in Flow Regime, Spring	10.1.b	Altered Hydrology	Dams	5a, 5b			Х												
10	water Quantity	Freshets, Piped Outfalls of Surface and Ground Water, Withdrawals, Flow-	10.2	Decreased Water Quantity		5a, 5b, 5d, 5e, 5f	Flow			Χ		Χ		Χ		Χ		Х		Χ	
		Related Plume Changes	10.2.a	Decreased Water Quantity	Low-head hydro diversions, dams	5a, 5b			Х												
			10.2.b	Decreased Water Quantity	Irrigation and municipal withdrawals	5d, 5e															
			10.2.c	Decreased Water Quantity	Hatchery withdrawals	5f															
			10.3	Altered Flow Timing		5b, 5c	Flow			Χ		Χ		Χ		Χ		Χ		Χ	
			10.3a	Altered Flow Timing	Dams	5b			Х											ļ	
			10.3.b	Altered Flow Timing	Land use	5c		Χ													
			11.1	Impaired abundance and diversity (targeted fishing)	Consumptive, targeted fishery	7a	Harvest		Х		Х		Х		Х		Х		Х	_ 	Х
11	Population Diversity	Genetic drift, loss of genetic diversity, artifical selection by hatchery personnel interbreeding	11.2	Impaired abundance and diversity (non- targeted fishing)	Gill net fisheries targeted at other species		Harvest		Х												
		personnel interpreeding	11.3	Impaired productivity and diversity	Stray hatchery fish interbreeding with wild fish	7c		Х		Х		Х		Х		Х		Х		Х	

				LCR Chinook ESI	J: Gorge Spring Stratum						
ID	Ecological Concern	Alternate Terms	ID	Ecological Concern Sub-Category	Threat	OR Plan Code	WA Plan Terms	Н	bod	White S	Salmon
	Ecological Concern	Alternate ferms	טו	Ecological Colicerti Sub-Category	Hilleat	OK Flail Code	WA Flair Terms	Trib	Est	Trib	Est
			1.1	Anthropogenic Barriers (dams)	Large Dams	4a, 4b, 6g	Obstructions	Х		х	
1		Connectivity, Access, Structure, Simplification, Availability	1.2	Anthropogenic Barriers (other)	Hatchery Weirs, Road Crossings, Small Dams, Diversions	4c, 4d, 4e	Obstructions				
			1.3	Natural Barriers	Water Falls, Sand Bar, Bar Breach, Log Jams, Steep Gradient		Obstructions				
			2.1	Turbine/bypass mortality	Dams						
			2.2	Predation		8a, 8b, 8c, 8d	Predation				
	Direct Mortality	Predation, Disease, Species	2.2.a	Predation (non-salmonid fish, marine mamals)	Dams	8a, 8d		Χ	Х	Х	
1	Direct Mortality	Interactions	2.2.b	Predation (birds)	Land use	8b			Χ		
			2.2.c	Predation (hatchery fish)	Hatcheries	8c					
			2.3	Pathogens	Disease, Sea Lice		Pathogens				
			2.4	Harvest	Consumptive, targeted fishery/gillnet fisheries targeted at other species	7a, 7b	Harvest		Х	Х	
3	Toxic Contaminants	Pollution	3.1	Water	Agricultural Chemicals, Urban and Industrial Practices	9c, 9d	Chemicals		Χ		
	TOXIC CONtaminants	Foliation	3.2	Biota	Agricultural Chemicals, Urban and Industrial Practices	9c, 9d	Chemicals	Х	Х		
			4.1	Altered Primary Productivity	Dam Reservoirs	3a, 3b	Food		Х		
4	Food	Competition, Prey Availability, Species Interactions	4.2	Competition	Smolts from all Columbia Basin hatcheries	1a	Competition	Χ	Χ	Х	
			4.3	Altered Prey Composition and Diversity	Prey species/other species harvest		Food				
			5.1	Riparian Condition	Past and/or currrent land use practices	6e, 6f	Channel stability, habitat diversity, key habitat	Х		Х	
5	Riparian Condition	Impaired Riparian Function/Condition, Microclimate, Lack of Shade	5.2	LWD Recruitment		6e, 6f	Channel stability, Flow, Habitat Diversity		_		_
			5.2.b	LWD Recruitment	Past and/or currrent land use practices				_		
			5.2.a	LWD Recruitment	Dams					X	

			6.1	Side Channel and Wetland Conditions	Past and/or currrent land use practices/transportation corridor	6e, 6f	Channel stability, habitat diversity, key habitat	Х		Х	
					practices/transportation corridor		uiversity, key nabitat				
			6.2	Floodplain Condition	Past and/or currrent land use practices/transportation corridor	6e, 6f	Channel stability, habitat diversity, key habitat	Χ		Х	
			6.3	Estuary Conditions		3a, 3b, 5b, 6c, 6e	Food, Channel stability, habitat diversity, key habitat, flow				
6	Peripheral and	High quality over-winter rearing habitat, Habitat Diversity, (Key) Habitat	6.3.a	Competition from hatchery smolts	Hatcheries	1a			Χ		
	Transitional Habitats	Quantity/Quality, Refugia Habitat	6.3.b	Reduced macrodetrital inputs	Dam reservoirs	3a			Х		
			6.3.c	Increased microdetrital inputs	Dam reservoirs	3b			Χ		
			6.3.d	Altered plume dynamics	Dams	5b			Χ		
			6.3.e	Impaired sediment/sandf routing	Dams	6c			Χ		
			6.3.f	Estuary habitat quality (complexity and diversity)	Dams	6e			Х		
			6.4	Nearshore Conditions							
				LCR Chinook ESI	J: Gorge Spring Stratum						
		=						Н	ood	White	Salmon
ID	Ecological Concern	Alternate Terms	ID	Ecological Concern Sub-Category	Threat	OR Plan Code	WA Plan Terms	Trib	Est	Trib	Est
	Channel Structure and	Channel Conditions, Channel Form, Channel morphology, Channel	7.1	Bed and Channel Form	Past and/or currrent land use practices/transportation corridor	6e, 6f, 6g, 5b	Channel stability, habitat diversity, key habitat, flow	Х	X	Х	
7	Form	Instability, Channel Stability, Loss of Spawning Substrate due to high flow, Bedload Movement	7.2	Instream Structural Complexity	Past and/or currrent land use practices	6e, 6f, 6g, 5b	Channel stability, habitat diversity, key habitat, flow	X	X	Х	
			8.1	Sediment Quantitiy		6a, 6b, 6c, 6d	Sediment				
		Sediment, Stream Spawning Habitat,	8.1.a	Decreased Sediment Quantity	Dams	6c, 6d			Χ		
8	Sediment Conditions	Spawning Gravel, Beach Spawning Habitat (lake), Substrate, Benthic Habitat	8.1.b	Increased Sediment Quantity	Past and/or currrent land use practices/transportation corridor	6a, 6b		Х			
			8.1.c	Increased Sediment Quantity	Dam removal					Х	
			9.1	Temperature		9a, 9b	Temperature				
			9.1.a	Temperature (land use)	Land uses that impair riparian function/decrease streamflow	9a			Х		
			9.1.b	Temperature (dam reservoirs)	Large dam reservoirs	9b			Χ		
	Water Ovelli		9.2	Oxygen	Agricultural Chemicals, Urban and Industrial Practices		Oxygen				
9	Water Quality		9.3	Turbidity		6a, 6b	Sediment				
			9.3.a	Decreased Turbidity (dams)	Dams	6c			Х	Χ	
			9.3.b	Increased Turbidity (land use)	Land use/rural roads	6a, 6b		Χ			
1			9.4	рН							
L			9.5	Salinity			Salinity				

			10.1	Altered Hydrology		5a, 5b, 5c	Flow				
			10.1.a	Altered Hydrology	Past and/or currrent land use practices/transportation corridor	5c		Х			
		Changes in Flow Regime, Spring	10.1.b	Altered Hydrology	Dams	5a, 5b			Х		
10		Freshets, Piped Outfalls of Surface and Ground Water, Withdrawals, Flow-	10.2	Decreased Water Quantity		5a, 5b, 5d, 5e, 5f	Flow				
		Related Plume Changes	10.2.a	Decreased Water Quantity	Low-head hydro diversions, dams	5a, 5b		Χ		Χ	ı
			10.2.b	Decreased Water Quantity	Irrigation and municipal withdrawals	5d, 5e		Χ			
			10.2.c	Decreased Water Quantity	Hatchery withdrawals	5f					
			10.3	Altered Flow Timing		5b, 5c	Flow				
			10.3a	Altered Flow Timing	Dams	5b			Х	Χ	
			10.3.b	Altered Flow Timing	Land use	5c		Χ			
			11.1	Impaired abundance and diversity (targeted fishing)	Consumptive, targeted fishery	7a	Harvest		Х	Х	
11	Population Diversity	Genetic drift, loss of genetic diversity, artificail selection by hatchery personnel interbreeding	11 2		Gill net fisheries targeted at other species	7b	Harvest				
		porcoming	11.3	Impaired productivity and diversity	Stray hatchery fish interbreeding with wild fish	7c	_	X			

					LCR Chino	ok ESU: Coa	stal Fall Stratum														
								Youn	gs Bay	Big (Creek	Clats	kanie	Scap	poose	Gı	ays	Eloch	ioman	Mill	Creek
ID	Ecological Concern	Alternate Terms	ID	Ecological Concern Sub-Category	Threat	OR Plan Code	WA Plan Terms	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est
			1.1	Anthropogenic Barriers (dams)	Large Dams	4a, 4b, 6g	Obstructions														
1	Habitat Quantity	Connectivity, Access, Structure, Simplification, Availability	1.2	Anthropogenic Barriers (other)	Hatchery Weirs, Road Crossings, Small Dams, Diversions	4c, 4d, 4e	Obstructions	Х		Х											
			1.3	Natural Barriers	Water Falls, Sand Bar, Bar Breach, Log Jams, Steep Gradient		Obstructions														
			2.1	Turbine/bypass mortality	Dams																
			2.2	Predation		8a, 8b, 8c, 8d	Predation									Х		Х	Х	Х	Х
,	Direct Mortality	Predation, Disease, Species	2.2.a	Predation (non-salmonid fish, marine mamals)	Dams	8a, 8d															
2	Direct mortality	Interactions	2.2.b	Predation (birds)	Land use	8b			Х		Х		Х		Х						
			2.2.c	Predation (hatchery fish)	Hatcheries	8c															
			2.3	Pathogens	Disease, Sea Lice		Pathogens									?					
			2.4	Harvest	Consumptive, targeted fishery/gillnet fisheries targeted at other species	7a, 7b	Harvest		Х		Х		Х		Х		Х		Х		Х
١,	Toxic Contaminants	Pollution	3.1	Water	Agricultural Chemicals, Urban and Industrial Practices	9c, 9d	Chemicals		Χ		Х		Х		Х						
3	TOXIC CONTAININANTS	Foliation	3.2	Biota	Agricultural Chemicals, Urban and Industrial Practices	9c, 9d	Chemicals		Х		Х		Х		Х						
			4.1	Altered Primary Productivity	Dam Reservoirs	3a, 3b	Food		Х		Х		Х		Х			?			
4	Food	Competition, Prey Availability, Species Interactions	4.2	Competition	Smolts from all Columbia Basin hatcheries	1a	Competition		Х		Х		Х		Х		?		?		?
			4.3	Altered Prey Composition and Diversity	Prey species/other species harvest		Food														
			5.1	Riparian Condition	Past and/or currrent land use practices	6e, 6f	Channel stability, habitat diversity, key habitat	х		х		х		х		х		Х		х	
5	Riparian Condition	Impaired Riparian Function/Condition, Microclimate, Lack of Shade	5.2	LWD Recruitment		6e, 6f	Channel stability, Flow, Habitat Diversity	х		х		х		х		Х		Х		Х	
			5.2.b	LWD Recruitment	Past and/or currrent land use practices																
			5.2.a	LWD Recruitment	Dams																
			6.1	Side Channel and Wetland Conditions	Past and/or currrent land use practices/transportation corridor	6e, 6f	Channel stability, habitat diversity, key habitat	Х		Х		Х		Х		Х		Χ		Х	
			6.2	Floodplain Condition	Past and/or currrent land use practices/transportation corridor	6e, 6f	Channel stability, habitat diversity, key habitat	х		х		х		х		х		Х		х	
			6.3	Estuary Conditions		3a, 3b, 5b, 6c, 6e	Food, Channel stability, habitat diversity, key habitat, flow										Х		Х		Х
1 .	Peripheral and	High quality over-winter rearing	6.3.a	Competition from hatchery smolts	Hatcheries	1a			Χ		Χ		Χ		Х						
6	Transitional Habitats	habitat, Habitat Diversity, (Key) Habitat Quantity/Quality, Refugia Habitat	6.3.b	Reduced macrodetrital inputs	Dam reservoirs	3a			Х		Х		Х		Х						
			6.3.c	Increased microdetrital inputs	Dam reservoirs	3b			Х		Х		Х		Х						
			6.3.d	Altered plume dynamics	Dams	5b			X		Х		X		Х						
			6.3.e	Impaired sediment/sandf routing	Dams	6c			X		X		X		X		1				1
			6.3.f	Estuary habitat quality (complexity and diversity)	Dams	6e			Х		X		X		X						
			6.4	Nearshore Conditions								l -					1				
	1		0.4	Trout of the Control	l .	l	ı				L	L	L	L	L	L	<u> </u>	l			L

					LCR Chino	ok ESU: Coa	stal Fall Stratum														
								Young	gs Bay	Big C	reek	Clats	kanie	Scapp	oose	Gr	ays	Eloch	oman	Mill C	Creek
ID	Ecological Concern	Alternate Terms	ID	Ecological Concern Sub-Category	Threat	OR Plan Code	WA Plan Terms	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est
	Channel Structure and	Channel Conditions, Channel Form,	7.1	Bed and Channel Form	Past and/or currrent land use practices/transportation corridor	6e, 6f, 6g, 5b	Channel stability, habitat diversity, key habitat, flow	х	х	х	х	х	х	х	х	х		Х	Х	х	х
7	Form	Instability, Channel Stability, Loss of Spawning Substrate due to high flow, Bedload Movement	7.2	Instream Structural Complexity	Past and/or currrent land use practices	6e, 6f, 6g, 5b	Channel stability, habitat diversity, key habitat, flow	х	х	х	х	х	х	х	х	х		х	х	х	х
			8.1	Sediment Quantitiy		6a, 6b, 6c, 6d	Sediment									Х		Х	Х	Х	Х
8	Sediment Conditions	Sediment, Stream Spawning Habitat, Spawning Gravel, Beach Spawning	8.1.a	Decreased Sediment Quantity	Dams	6c, 6d			Х		Х		Х		Х						
		Habitat (lake), Substrate, Benthic Habitat	8.1.b	Increased Sediment Quantity	Past and/or currrent land use practices/transportation corridor	6a, 6b		Х		Х		Х		Х							
			9.1	Temperature		9a, 9b	Temperature									Х		Х	Х	Х	Х
			9.1.a	Temperature (land use)	Land uses that impair riparian function/decrease streamflow	9a			Х		Х		Х		Х						
			9.1.b	Temperature (dam reservoirs)	Large dam reservoirs	9b			Х		Х		Χ		Х						
			9.2	Oxygen	Agricultural Chemicals, Urban and Industrial Practices		Oxygen														
9	Water Quality		9.3	Turbidity		6a, 6b	Sediment									Х		Х	Х	Х	Х
			9.3.a	Decreased Turbidity (dams)	Dams	6c			Х		Х		Х		Х						
			9.3.b	Increased Turbidity (land use)	Land use/rural roads	6a, 6b		Χ		Х		Х		Х							
			9.4	pH																	
			9.5	Salinity			Salinity														
			10.1	Altered Hydrology		5a, 5b, 5c	Flow									Х		Х	Х	Х	Х
			10.1.a	Altered Hydrology	Past and/or currrent land use practices/transportation corridor	5c		х		х		Х		х							
		Changes in Flow Regime, Spring	10.1.b	Altered Hydrology	Dams	5a, 5b			Х		Х		Х		Х						
10	Water Quantity	Freshets, Piped Outfalls of Surface and Ground Water, Withdrawals, Flow-	10.2	Decreased Water Quantity		5a, 5b, 5d, 5e, 5f	Flow									Χ		Χ	Χ	Χ	X
		Related Plume Changes	10.2.a	Decreased Water Quantity	Low-head hydro diversions, dams	5a, 5b			Х		Х		Х		Х						
			10.2.b	Decreased Water Quantity	Irrigation and municipal withdrawals	5d, 5e															
			10.2.c	Decreased Water Quantity	Hatchery withdrawals	5f															
			10.3	Altered Flow Timing		5b, 5c	Flow									Х		Χ	Χ	Χ	X
			10.3a	Altered Flow Timing	Dams	5b			Х		Х		Х		Х						
			10.3.b	Altered Flow Timing	Land use	5c		Х		Х		Χ		Х							
		Constitution of ganetic discounting	11.1	Impaired abundance and diversity (targeted fishing)	Consumptive, targeted fishery	7a	Harvest		Х		Х		Х		Х		Х		Х		Х
11	Population Diversity	Genetic drift, loss of genetic diversity, artifical selection by hatchery personnel interbreeding	11.2	Impaired abundance and diversity (non-targeted fishing)	Gill net fisheries targeted at other species	7b	Harvest														
		parametric interpretable	11.3	Impaired productivity and diversity	Stray hatchery fish interbreeding with wild fish	7c		Х		Х		Х		Х		Х		Х		Х	

						LCR	Chinook ESU: Ca	scade	Fall St	ratum																	
ID	Ecological Concern	Alternate Terms	ID	Ecological Concern Sub-Category	Threat	OR Plan Code	WA Plan Terms	Clac	kamas	Sa	ndy	Lower	Cowlitz	Upper	Cowlitz	То	utle	Cow	eeman	Ka	lama	Lewis	(EF)	Salmor	n Creek	Wash	nougal
l ID	Ecological Concern	Alternate Terms	ID	Ecological Concern Sub-Category	Inreat	OR Plan Code	WA Plan Terms	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est
			1.1	Anthropogenic Barriers (dams)	Large Dams	4a, 4b, 6g	Obstructions			Х				х													
1	Habitat Quantity	Connectivity, Access, Structure, Simplification, Availability	1.2	Anthropogenic Barriers (other)	Hatchery Weirs, Road Crossings, Small Dams, Diversions	4c, 4d, 4e	Obstructions																				
			1.3	Natural Barriers	Water Falls, Sand Bar, Bar Breach, Log Jams, Steep Gradient		Obstructions																				<u> </u>
			2.1	Turbine/bypass mortality	Dams																						ł
			2.2	Predation		8a, 8b, 8c, 8d	Predation						Х		Х	Х	Х		Х	Х	Х	Х	Χ	Х	Х	Х	Х
,	Direct Mortality	Predation, Disease, Species	2.2.a	Predation (non-salmonid fish, marine mamals)	Dams	8a, 8d																					L
_	Direct mortality	Interactions	2.2.b	Predation (birds)	Land use	8b			Х		Х																i
]	2.2.c	Predation (hatchery fish)	Hatcheries	8c																					
			2.3	Pathogens	Disease, Sea Lice		Pathogens					?	?	?	?												i i
			2.4	Harvest	Consumptive, targeted fishery/gillnet fisheries targeted at other species	7a, 7b	Harvest		Х		Х		Х		Х		Х		Х		Х		Х	Х	Х	Х	Х
,	Toxic Contaminants	Pollution	3.1	Water	Agricultural Chemicals, Urban and Industrial Practices	9c, 9d	Chemicals		Х		Х																
, ,	TOXIC CONTAININANTS	Politicon	3.2	Biota	Agricultural Chemicals, Urban and Industrial Practices	9c, 9d	Chemicals		Х		Х																
			4.1	Altered Primary Productivity	Dam Reservoirs	3a, 3b	Food		х		Х		?	?	?										1		1 '
4	Food	Competition, Prey Availability, Species Interactions	4.2	Competition	Smolts from all Columbia Basin hatcheries	1a	Competition		Х		Х	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?
			4.3	Altered Prey Composition and Diversity	Prey species/other species harvest		Food						?	?	?										l '		ı
			5.1	Riparian Condition	Past and/or currrent land use practices	6e, 6f	Channel stability, habitat diversity, key habitat	х		х		х		х		х		х		х		х		х		х	
5	Riparian Condition	Impaired Riparian Function/Condition, Microclimate, Lack of Shade	5.2	LWD Recruitment		6e, 6f	Channel stability, Flow, Habitat Diversity	х		х		х		х		х		х		х		х		х		Х	
			5.2.b	LWD Recruitment	Past and/or currrent land use practices																						l
			5.2.a	LWD Recruitment	Dams																				<u> </u>		
			6.1	Side Channel and Wetland Conditions	Past and/or currrent land use practices/transportation corridor	6e, 6f	Channel stability, habitat diversity, key habitat	Х		Х		Х		Х		Х		Х		Х		Х		Х		Х	L
			6.2	Floodplain Condition	Past and/or currrent land use practices/transportation corridor	6e, 6f	Channel stability, habitat diversity, key habitat	х		х		х		х		х		х		х		х		х		х	ł
			6.3	Estuary Conditions		3a, 3b, 5b, 6c, 6e	Food, Channel stability, habitat diversity, key habitat, flow						Х		Х		Х		х		Х		Х		Х		Х
	Peripheral and	High quality over-winter rearing	6.3.a	Competition from hatchery smolts	Hatcheries	1a			Х		Χ														1		
6	Transitional Habitats	habitat, Habitat Diversity, (Key) Habitat Quantity/Quality, Refugia Habitat	6.3.b	Reduced macrodetrital inputs	Dam reservoirs	3a			Х		Х																
			6.3.c	Increased microdetrital inputs	Dam reservoirs	3b			Х		Х																
			6.3.d	Altered plume dynamics	Dams	5b			Х		Х																
			6.3.e	Impaired sediment/sandf routing	Dams	6c			Х		Х														-		
			6.3.f	Estuary habitat quality (complexity and diversity)	Dams	6e			X		X																
		1	6.4	Nearshore Conditions	 												-			-	†				\vdash		-
			0.4	Nearshore Conditions															<u> </u>								

						LCR	Chinook ESU: Ca	scade	Fall St	ratum																	
								Claci	kamas	Sar	ndy	Lower	Cowlitz	Upper	Cowlitz	To	utle	Cowe	eman	Kal	ama	Lewi	s (EF)	Salmon	Creek	Wasi	nougal
ID	Ecological Concern	Alternate Terms	ID	Ecological Concern Sub-Category	Threat	OR Plan Code	WA Plan Terms	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est
	Channel Structure and	Channel Conditions, Channel Form, Channel morphology, Channel	7.1	Bed and Channel Form	Past and/or currrent land use practices/transportation corridor	6e, 6f, 6g, 5b	Channel stability, habitat diversity, key habitat, flow	Х	х	х	х	х	Х	х	х	х		х	х	х	х	х	х	х	х	Х	х
'	Form	Instability, Channel Stability, Loss of Spawning Substrate due to high flow, Bedload Movement	7.2	Instream Structural Complexity	Past and/or currrent land use practices	6e, 6f, 6g, 5b	Channel stability, habitat diversity, key habitat, flow	х	х	х	х	х	Х	х	х	х		х	Х	х	Х	х	Х	х	Х	Х	х
			8.1	Sediment Quantitiy		6a, 6b, 6c, 6d	Sediment					Х	Х	Х	Х	Х		Х	Х	Х	Х	Х	Χ	Х	Χ	Х	Х
8	Cadimant Canditians	Sediment, Stream Spawning Habitat, Spawning Gravel, Beach Spawning	8.1.a	Decreased Sediment Quantity	Dams	6c, 6d		Х	Х	Χ	Х																
8	Sediment Conditions	Habitat (lake), Substrate, Benthic Habitat	8.1.b	Increased Sediment Quantity	Past and/or currrent land use practices/transportation corridor	6a, 6b		Х		Х																	
			9.1	Temperature		9a, 9b	Temperature									Х		Х		Х		Х		Χ		Χ	
			9.1.a	Temperature (land use)	Land uses that impair riparian function/decrease streamflow	9a		Χ	Х		Х																
			9.1.b	Temperature (dam reservoirs)	Large dam reservoirs	9b		Χ	Χ		Χ																
			9.2	Oxygen	Agricultural Chemicals, Urban and Industrial Practices		Oxygen																				
9	Water Quality		9.3	Turbidity		6a, 6b	Sediment					Х	Х	Х	Х	Х		Х		Х		Х		Χ		Χ	
			9.3.a	Decreased Turbidity (dams)	Dams	6c			Х		Х																
			9.3.b	Increased Turbidity (land use)	Land use/rural roads	6a, 6b		Χ		Χ																	
			9.4	рН																							
			9.5	Salinity			Salinity																				
			10.1	Altered Hydrology		5a, 5b, 5c	Flow					Х	х	х	х	х		х		Х		х		Х		х	
			10.1.a	Altered Hydrology	Past and/or currrent land use practices/transportation corridor	5c		Х		х																	
		Changes in Flow Regime, Spring	10.1.b	Altered Hydrology	Dams	5a, 5b			Х		Х																
10	Water Quantity	Freshets, Piped Outfalls of Surface and Ground Water, Withdrawals, Flow-	10.2	Decreased Water Quantity		5a, 5b, 5d, 5e, 5f	Flow					Χ	Χ	Χ	Χ	Χ		Χ		Χ		Χ		Χ		Χ	
		Related Plume Changes	10.2.a	Decreased Water Quantity	Low-head hydro diversions, dams	5a, 5b			Х		Х																
			10.2.b	Decreased Water Quantity	Irrigation and municipal withdrawals	5d, 5e																					
			10.2.c	Decreased Water Quantity	Hatchery withdrawals	5f																					
			10.3	Altered Flow Timing		5b, 5c	Flow					Χ	Х	Х	Х	Х		Х		Χ		Χ		Χ		Χ	
			10.3a	Altered Flow Timing	Dams	5b			Х		Х																
L	<u> </u>		10.3.b	Altered Flow Timing	Land use	5c		Χ		Χ																	
			11.1	Impaired abundance and diversity (targeted fishing)	Consumptive, targeted fishery	7a	Harvest		Х		Х		Х		Х		Х		Х		Х		Х		Х		Х
11	Population Diversity	Genetic drift, loss of genetic diversity, artifical selection by hatchery personnel interbreeding	11.2	Impaired abundance and diversity (non- targeted fishing)	Gill net fisheries targeted at other species	7b	Harvest																				
		personner interpreeding	11.3	Impaired productivity and diversity	Stray hatchery fish interbreeding with wild fish	7c		Х		Х		Х		Х		Х		Х		Х		Х		Х		Х	

				LC	R Chinook ESU: Gorge Fal	l Stratum									
								Lowe	r Gorge	Upper	Gorge	Н	ood	White	Salmon
ID	Ecological Concern	Alternate Terms	ID	Ecological Concern Sub-Category	Threat	OR Plan Code	WA Plan Terms	Trib	Est	Trib	Est	Trib	Est	Trib	Est
			1.1	Anthropogenic Barriers (dams)	Large Dams	4a, 4b, 6g	Obstructions			Х		Х		х	
1	Habitat Quantity	Connectivity, Access, Structure, Simplification, Availability	1.2	Anthropogenic Barriers (other)	Hatchery Weirs, Road Crossings, Small Dams, Diversions	4c, 4d, 4e	Obstructions								
			1.3	Natural Barriers	Water Falls, Sand Bar, Bar Breach, Log Jams, Steep Gradient		Obstructions								
			2.1	Turbine/bypass mortality	Dams										
			2.2	Predation		8a, 8b, 8c, 8d	Predation								
	D	Predation, Disease, Species	2.2.a	Predation (non-salmonid fish, marine mamals)	Dams	8a, 8d				Х		Х			
2	Direct Mortality	Interactions	2.2.b	Predation (birds)	Land use	8b			Х		Х		Х		
1			2.2.c	Predation (hatchery fish)	Hatcheries	8c									
			2.3	Pathogens	Disease, Sea Lice		Pathogens								
			2.4	Harvest	Consumptive, targeted fishery/gillnet fisheries targeted at other species	7a, 7b	Harvest		Х		Х		Х	Х	Х
3	Toxic Contaminants	Pollution	3.1	Water	Agricultural Chemicals, Urban and Industrial Practices	9c, 9d	Chemicals		Х		Х	Х	Х		
	Toxic contaminants	1 onution	3.2	Biota	Agricultural Chemicals, Urban and Industrial Practices	9c, 9d	Chemicals		Χ		Χ	Х	Х		
			4.1	Altered Primary Productivity	Dam Reservoirs	3a, 3b	Food		Х		Х		Х		
4	Food	Competition, Prey Availability, Species Interactions	4.2	Competition	Smolts from all Columbia Basin hatcheries	1a	Competition		Х	Х	Х	Х	Х	Х	
			4.3	Altered Prey Composition and Diversity	Prey species/other species harvest		Food								
			5.1	Riparian Condition	Past and/or currrent land use practices	6e, 6f	Channel stability, habitat diversity, key habitat	х	Х	х	Х	х	Х	Х	
5	Riparian Condition	Impaired Riparian Function/Condition, Microclimate, Lack of Shade	5.2	LWD Recruitment		6e, 6f	Channel stability, Flow, Habitat Diversity	х	Х	х	Х	х	Х	Х	
			5.2.b	LWD Recruitment	Past and/or currrent land use practices										
			5.2.a	LWD Recruitment	Dams										
			6.1	Side Channel and Wetland Conditions	Past and/or currrent land use practices/transportation corridor	6e, 6f	Channel stability, habitat diversity, key habitat	Х	Х	Х	Х	Х	Х		
			6.2	Floodplain Condition	Past and/or currrent land use practices/transportation corridor	6e, 6f	Channel stability, habitat diversity, key habitat	Х	Х	х	Х	х	Х		
			6.3	Estuary Conditions		3a, 3b, 5b, 6c, 6e	Food, Channel stability, habitat diversity, key habitat, flow								
6	Peripheral and	High quality over-winter rearing	6.3.a	Competition from hatchery smolts	Hatcheries	1a			Χ		Χ		Χ		
١	Transitional Habitats	habitat, Habitat Diversity, (Key) Habitat Quantity/Quality, Refugia Habitat	6.3.b	Reduced macrodetrital inputs	Dam reservoirs	3a			Х		Х		Х		
1			6.3.c	Increased microdetrital inputs	Dam reservoirs	3b			Х		Х		Х		
			6.3.d	Altered plume dynamics	Dams	5b			Х		Х		Х		
1			6.3.e	Impaired sediment/sandf routing	Dams	6c			Х		Х		X		
			6.3.f	Estuary habitat quality (complexity and diversity)	Dams	6e			Х		Х		X		
			6.4	Nearshore Conditions											

				LC	R Chinook ESU: Gorge Fall	Stratum									
								Lowe	Gorge	Upper	Gorge	Но	od	White \$	Salmon
ID	Ecological Concern	Alternate Terms	ID	Ecological Concern Sub-Category	Threat	OR Plan Code	WA Plan Terms	Trib	Est	Trib	Est	Trib	Est	Trib	Est
	Channel Structure and	Channel Conditions, Channel Form, Channel morphology, Channel	7.1	Bed and Channel Form	Past and/or currrent land use practices/transportation corridor	6e, 6f, 6g, 5b	Channel stability, habitat diversity, key habitat, flow	Х	х	х	х	х	х	Х	
7	Form	Instability, Channel Stability, Loss of Spawning Substrate due to high flow, Bedload Movement	7.2	Instream Structural Complexity	Past and/or currrent land use practices	6e, 6f, 6g, 5b	Channel stability, habitat diversity, key habitat, flow	x	х	х	х	х	х	Х	
			8.1	Sediment Quantitiy		6a, 6b, 6c, 6d	Sediment								
		Sediment, Stream Spawning Habitat,	8.1.a	Decreased Sediment Quantity	Dams	6c, 6d			Х		Х		Χ		
8	Sediment Conditions	Spawning Gravel, Beach Spawning Habitat (lake), Substrate, Benthic Habitat	8.1.b	Increased Sediment Quantity	Past and/or currrent land use practices/transportation corridor	6a, 6b						Х			
			8.1.c	Increased Sediment Quantity	Dam removal									Χ	
			9.1	Temperature		9a, 9b	Temperature								
			9.1.a	Temperature (land use)	Land uses that impair riparian function/decrease streamflow	9a			Х		Х		Χ		
			9.1.b	Temperature (dam reservoirs)	Large dam reservoirs	9b			Х		Х		Χ		
9	Mater Ovelity		9.2	Oxygen	Agricultural Chemicals, Urban and Industrial Practices		Oxygen								
"	Water Quality		9.3	Turbidity		6a, 6b	Sediment								
			9.3.a	Decreased Turbidity (dams)	Dams	6c			Х		Х		Х		
			9.3.b	Increased Turbidity (land use)	Land use/rural roads	6a, 6b						Х			
			9.4	рН											
			9.5	Salinity			Salinity								
			10.1	Altered Hydrology		5a, 5b, 5c	Flow								
			10.1.a	Altered Hydrology	Past and/or currrent land use practices/transportation corridor	5c		Х		Х		х			
		Changes in Flow Regime, Spring	10.1.b	Altered Hydrology	Dams	5a, 5b			Х		Х	Χ	Х		
10	Water Quantity	Freshets, Piped Outfalls of Surface and Ground Water, Withdrawals, Flow-	10.2	Decreased Water Quantity		5a, 5b, 5d, 5e, 5f	Flow								
		Related Plume Changes	10.2.a	Decreased Water Quantity	Low-head hydro diversions, dams	5a, 5b			Х		Χ	Χ	Х		
			10.2.b	Decreased Water Quantity	Irrigation and municipal withdrawals	5d, 5e						Х			
			10.2.c	Decreased Water Quantity	Hatchery withdrawals	5f									
			10.3	Altered Flow Timing		5b, 5c	Flow								
			10.3a	Altered Flow Timing	Dams	5b			Х		Х		Х		
			10.3.b	Altered Flow Timing	Land use	5c		Χ		Χ		Χ			
		Company during loss of monation discounting	11.1	Impaired abundance and diversity (targeted fishing)	Consumptive, targeted fishery	7a	Harvest		Х		Х		X		Х
11	Population Diversity	Genetic drift, loss of genetic diversity, artificail selection by hatchery personnel interbreeding	11.2	Impaired abundance and diversity (non- targeted fishing)	Gill net fisheries targeted at other species	7b	Harvest								
		,	11.3	Impaired productivity and diversity	Stray hatchery fish interbreeding with wild fish	7c		Х		Х		Х		Х	

				LCR Chinook ESU:	Cascade Late Fall Stratum						
	Facility is a Community	A14		Factorial Communication Code	Throat	OD Blow Oods	WA Diese Terror	Sa	ındy	Lewis	s (NF)
ID	Ecological Concern	Alternate Terms	ID	Ecological Concern Sub-Category	Threat	OR Plan Code	WA Plan Terms	Trib	Est	Trib	Est
			1.1	Anthropogenic Barriers (dams)	Large Dams	4a, 4b, 6g	Obstructions	Х			
1	Habitat Quantity	Connectivity, Access, Structure, Simplification, Availability	1.2	Anthropogenic Barriers (other)	Hatchery Weirs, Road Crossings, Small Dams, Diversions	4c, 4d, 4e	Obstructions				
			1.3	Natural Barriers	Water Falls, Sand Bar, Bar Breach, Log Jams, Steep Gradient		Obstructions				
			2.1	Turbine/bypass mortality	Dams						
			2.2	Predation		8a, 8b, 8c, 8d	Predation			Χ	Х
		Predation, Disease, Species	2.2.a	Predation (non-salmonid fish, marine mamals)	Dams	8a, 8d					
2	Direct Mortality	Interactions	2.2.b	Predation (birds)	Land use	8b			Χ		
			2.2.c	Predation (hatchery fish)	Hatcheries	8c					
			2.3	Pathogens	Disease, Sea Lice		Pathogens				
			2.4	Harvest	Consumptive, targeted fishery/gillnet fisheries targeted at other species	7a, 7b	Harvest		Х	Х	Х
	Tavia Cantaminanta	Dalludian	3.1	Water	Agricultural Chemicals, Urban and Industrial Practices	9c, 9d	Chemicals		Χ		
3	Toxic Contaminants	Pollution	3.2	Biota	Agricultural Chemicals, Urban and Industrial Practices	9c, 9d	Chemicals		Х		
			4.1	Altered Primary Productivity	Dam Reservoirs	3a, 3b	Food		Х		
4	Food	Competition, Prey Availability, Species Interactions	4.2	Competition	Smolts from all Columbia Basin hatcheries	1a	Competition		Х		
			4.3	Altered Prey Composition and Diversity	Prey species/other species harvest		Food				
			5.1	Riparian Condition	Past and/or currrent land use practices	6e, 6f	Channel stability, habitat diversity, key habitat	х		Х	
5	Riparian Condition	Impaired Riparian Function/Condition, Microclimate, Lack of Shade	5.2	LWD Recruitment		6e, 6f	Channel stability, Flow, Habitat Diversity	х		Х	
			5.2.b	LWD Recruitment	Past and/or currrent land use practices						
			5.2.a	LWD Recruitment	Dams						
			6.1	Side Channel and Wetland Conditions	Past and/or currrent land use practices/transportation corridor	6e, 6f	Channel stability, habitat diversity, key habitat	Х		Х	
			6.2	Floodplain Condition	Past and/or currrent land use practices/transportation corridor	6e, 6f	Channel stability, habitat diversity, key habitat	х		Х	
			6.3	Estuary Conditions		3a, 3b, 5b, 6c, 6e	Food, Channel stability, habitat diversity, key habitat, flow				Х
6	Peripheral and	High quality over-winter rearing habitat, Habitat Diversity, (Key) Habitat	6.3.a	Competition from hatchery smolts	Hatcheries	1a			Χ		
	Transitional Habitats	Quantity/Quality, Refugia Habitat	6.3.b	Reduced macrodetrital inputs	Dam reservoirs	3a			Х		
			6.3.c	Increased microdetrital inputs	Dam reservoirs	3b			Х		
			6.3.d	Altered plume dynamics	Dams	5b			Х		
			6.3.e	Impaired sediment/sandf routing	Dams	6c			Х		
			6.3.f	Estuary habitat quality (complexity and diversity)	Dams	6e			Х		
			6.4	Nearshore Conditions							

				LCR Chinook ESU:	Cascade Late Fall Stratum						
					_			Sa	ndy	Lewis	(NF)
ID	Ecological Concern	Alternate Terms	ID	Ecological Concern Sub-Category	Threat	OR Plan Code	WA Plan Terms	Trib	Est	Trib	Est
7	Channel Structure and	Channel Conditions, Channel Form, Channel morphology, Channel Instability, Channel Stability, Loss of	7.1	Bed and Channel Form	Past and/or currrent land use practices/transportation corridor	6e, 6f, 6g, 5b	Channel stability, habitat diversity, key habitat, flow	х	х	Х	Х
	Form	Spawning Substrate due to high flow, Bedload Movement	7.2	Instream Structural Complexity	Past and/or currrent land use practices	6e, 6f, 6g, 5b	Channel stability, habitat diversity, key habitat, flow	Х	х	Х	Х
			8.1	Sediment Quantitiy		6a, 6b, 6c, 6d	Sediment			Х	
8	Sediment Conditions	Sediment, Stream Spawning Habitat, Spawning Gravel, Beach Spawning	8.1.a	Decreased Sediment Quantity	Dams	6c, 6d		Х	Х		
		Habitat (lake), Substrate, Benthic Habitat	8.1.b	Increased Sediment Quantity	Past and/or currrent land use practices/transportation corridor	6a, 6b		Х			
			9.1	Temperature		9a, 9b	Temperature			Χ	
			9.1.a	Temperature (land use)	Land uses that impair riparian function/decrease streamflow	9a			Χ		
			9.1.b	Temperature (dam reservoirs)	Large dam reservoirs	9b			Χ		
			9.2	Oxygen	Agricultural Chemicals, Urban and Industrial Practices		Oxygen				
9	Water Quality		9.3	Turbidity		6a, 6b	Sediment			Х	
			9.3.a	Decreased Turbidity (dams)	Dams	6c			Х		
			9.3.b	Increased Turbidity (land use)	Land use/rural roads	6a, 6b		Χ			
			9.4	рН							
			9.5	Salinity			Salinity				
			10.1	Altered Hydrology		5a, 5b, 5c	Flow			Х	Х
			10.1.a	Altered Hydrology	Past and/or currrent land use practices/transportation corridor	5c		Х			
		Changes in Flow Regime, Spring	10.1.b	Altered Hydrology	Dams	5a, 5b			Х		
10	Water Quantity	Freshets, Piped Outfalls of Surface and Ground Water, Withdrawals, Flow-	10.2	Decreased Water Quantity		5a, 5b, 5d, 5e, 5f	Flow			Χ	Χ
		Related Plume Changes	10.2.a	Decreased Water Quantity	Low-head hydro diversions, dams	5a, 5b			Х		
			10.2.b	Decreased Water Quantity	Irrigation and municipal withdrawals	5d, 5e					
			10.2.c	Decreased Water Quantity	Hatchery withdrawals	5f					
			10.3	Altered Flow Timing		5b, 5c	Flow			Χ	Χ
			10.3a	Altered Flow Timing	Dams	5b			Х		
			10.3.b	Altered Flow Timing	Land use	5c		Χ			
		Complie dulff loop of manual allers	11.1	Impaired abundance and diversity (targeted fishing)	Consumptive, targeted fishery	7a	Harvest		Х		Х
11	Population Diversity	Genetic drift, loss of genetic diversity, artificail selection by hatchery personnel interbreeding	11.2	Impaired abundance and diversity (non- targeted fishing)	Gill net fisheries targeted at other species		Harvest				
		porsonner	11.3	Impaired productivity and diversity	Stray hatchery fish interbreeding with wild fish	7c		Х			

D Ecological Concern Alternate Terms ID Ecological Concern Sub-Category Threat	8a, 8b, 8c, 8d 8a, 8d 8b 8c 7a, 7b	WA Plan Terms Obstructions Obstructions Predation Pathogens Harvest	Gr:	Est Est	Eloch Trib	Est .	Mill C	Est Est	Young Trib	Est	Big (Est Est	Clats Trib	Est	Scapp Trib	Est Est
1.1 Anthropogenic Barriers (dams) Large Dams 1.2 Anthropogenic Barriers (other) Hatchery Weirs, Road Crossings, Sma Dams, Diversions Water Falls, Sand Bar, Bar Breach, Log Jams, Steep Gradient 2.1 Turbine/bypass mortality Direct Mortality Predation, Disease, Species Interactions Predation, Disease, Species Interactions Predation (non-salmonid fish, marine mamals) 2.2.b Predation (birds) 2.3 Pathogens Disease, Sea Lice Consumptive targeted fishery/gillnet	4a, 4b, 6g 1 4c, 4d, 4e 8a, 8b, 8c, 8d 8a, 8d 8b 8c	Obstructions Obstructions Obstructions Predation Pathogens	Trib	Est		Est	Trib	Est		Est		Est	Trib	Est		Est
1.2 Anthropogenic Barriers (other) Hatchery Weirs, Road Crossings, Sma Dams, Diversions 1.3 Natural Barriers Water Falls, Sand Bar, Bar Breach, Log Jams, Steep Gradient 2.1 Turbine/bypass mortality Direct Mortality Predation, Disease, Species Interactions Predation, Disease, Species Interactions Predation (non-salmonid fish, marine mamals) 2.2.b Predation (birds) 2.2.c Predation (hatchery fish) Hatcheries Dams 2.2.c Predation (hatchery fish) Hatcheries Disease, Sea Lice Consumptive tarreted fishery/gillnet	8a, 8b, 8c, 8d 8a, 8d 8b 8c	Obstructions Obstructions Predation Pathogens			X				х		Х				Х	
2 Direct Mortality Predation, Disease, Species Interactions Predation Disease, Species Interactions Predation Disease, Species Interactions Predation (hon-salmonid fish, marine mamals) 2.2 Predation (hon-salmonid fish, marine mamals) 2.3 Predation (birds) 2.4 Direct Mortality Predation (hon-salmonid fish, marine mamals) 2.5 Predation (hon-salmonid fish, marine mamals) 2.6 Predation (hon-salmonid fish, marine mamals) 2.7 Direct Mortality Predation (hon-salmonid fish, marine mamals) 2.8 Predation (hon-salmonid fish, marine mamals) 2.9 Predation (hon-salmonid fish, marine mamals) 2.1 Direct Mortality Predation, Disease, Species Interactions Predation (hon-salmonid fish, marine mamals) 2.1 Direct Mortality Predation, Disease, Species Interactions Predation (hon-salmonid fish, marine mamals) 2.2 Predation (birds) 2.3 Pathogens Disease, Sea Lice Consumptive tarrested fisher//gillnet	8a, 8b, 8c, 8d 8a, 8d 8b 8c 7a, 7b	Obstructions Predation Pathogens			X				X		X				X	
1.3 Natural Barriers Jams, Steep Gradient 2.1 Turbine/bypass mortality Dams 2.2 Predation Predation, Disease, Species Interactions Predation, Disease, Species Interactions Dams 2.2.b Predation (hon-salmonid fish, marine mamals) 2.2.b Predation (birds) Land use 2.2.c Predation (hatchery fish) Hatcheries 2.3 Pathogens Disease, Sea Lice	8a, 8b, 8c, 8d 8a, 8d 8b 8c	Predation Pathogens			Х											
2 Direct Mortality Predation, Disease, Species Interactions Predation, Disease, Species Interactions 2.2.a Predation (non-salmonid fish, marine mamals) 2.2.b Predation (birds) 2.2.c Predation (hatchery fish) Hatcheries 2.3 Pathogens Disease, Sea Lice	8a, 8d 8b 8c 7a, 7b	Pathogens			Х											
Direct Mortality Predation, Disease, Species Interactions 2.2.a Predation (non-salmonid fish, marine mamals) 2.2.b Predation (birds) 2.2.c Predation (hatchery fish) Hatcheries 2.3 Pathogens Disease, Sea Lice Consumptive targeted fishery/gillnet	8a, 8d 8b 8c 7a, 7b	Pathogens			X										Ì	
Direct Mortality Predation, Disease, Species Interactions 2.2.a mamals) Dams 2.2.b Predation (birds) 2.2.c Predation (hatchery fish) Hatcheries 2.3 Pathogens Disease, Sea Lice Consumptive targeted fishery/gillnet	8b 8c 7a, 7b														ļ	l
Direct Mortality Interactions 2.2.b Predation (birds) Land use 2.2.c Predation (hatchery fish) Hatcheries 2.3 Pathogens Disease, Sea Lice Consumptive targeted fishery/gillnet	8c 7a, 7b															
2.3 Pathogens Disease, Sea Lice Consumptive targeted fishery/gillnet	7a, 7b															
Consumptive targeted fishery/gillnet										Χ		Χ		Χ		Χ
Consumptive, targeted fishery/gillnet		Harvest														
2.4 Harvest fisheries targeted at other species		1														
3 Toxic Contaminants Pollution Agricultural Chemicals, Urban and Industrial Practices	9c, 9d	Chemicals								Х		Х		Х		Х
3.2 Biota Agricultural Chemicals, Urban and Industrial Practices	9c, 9d	Chemicals								Х		Х		Х		Х
4.1 Altered Primary Productivity Dam Reservoirs	3a, 3b	Food								X		X		X		X
4 Food Competition, Prey Availability, Species Interactions 4.2 Competition Smolts from all Columbia Basin hatcheries	1a	Competition		Х												
4.3 Altered Prey Composition and Diversity Prey species/other species harvest		Food														1
5.1 Riparian Condition Past and/or currrent land use practice:	6e, 6f	Channel stability, habitat diversity, key habitat	х		х		Х									
5 Riparian Condition Function/Condition, Microclimate, Lack of Shade LWD Recruitment	6e, 6f	Channel stability, Flow, Habitat Diversity	х		Х		Х									
5.2.b LWD Recruitment Past and/or currrent land use practices	5															
5.2.a LWD Recruitment Dams	1	Channel stability,														
6.1 Side Channel and Wetland Conditions Past and/or currrent land use practices/transportation corridor	6e, 6f	habitat diversity, key habitat	Х		X		Х									
6.2 Floodplain Condition Past and/or currrent land use practices/transportation corridor	6e, 6f	Channel stability, habitat diversity, key habitat	Х		х		х									
6.3 Estuary Conditions High quality over-winter rearing	3a, 3b, 5b, 6c, 6e	Food, Channel stability, habitat diversity, key habitat, flow		Х		Х		Х								
Peripheral and habitat, Habitat Diversity, (Key) Transitional Habitats Habitat Quantity/Quality, Refugia	1a															_
Habitat Habitat Habitat Habitat G.3.b Reduced macrodetrital inputs Dam reservoirs	3a									Х		Х		Х		Х
6.3.c Increased microdetrital inputs Dam reservoirs	3b									Х		Х		Х		Х
6.3.d Altered plume dynamics Dams	5b									Х		Х		Х		Х
6.3.e Impaired sediment/sandf routing Dams	6c									Х		Х		Х		Х
6.3.f Estuary habitat quality (complexity and diversity)	6e									Х		Х		Х		Х
6.4 Nearshore Conditions	1															

					LCR Ch	num ESU: Co	past Stratum														
ID	Ecological Concern	Alternate Terms	ID	Ecological Concern Sub-Category	Threat	OR Plan Code	WA Plan Terms	Gı	rays	Eloch	oman	Mill C	reek	Young	gs Bay	Big (Creek	Clatsi	kanie	Scap	poose
L	Ecological Concern	Alternate Terms	ID.	Ecological Concern Sub-Category	Tilleat	OK Flail Code	WA Flair Terms	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est
7	Channel Structure	Channel Conditions, Channel Form, Channel morphology, Channel Instability, Channel Stability, Loss	7.1	IBed and Channel Form	Past and/or currrent land use practices/transportation corridor	6e, 6f, 6g, 5b	Channel stability, habitat diversity, key habitat, flow	х	Х	х	Х	х	Х		х		х		x		х
	and Form	of Spawning Substrate due to high flow, Bedload Movement	7.2	Instream Structural Complexity	Past and/or currrent land use practices	6e, 6f, 6g, 5b	Channel stability, habitat diversity, key habitat, flow	х	Х	х	Х	Х	X		Х		Х		Х		х
			8.1	Sediment Quantitiy		6a, 6b, 6c, 6d	Sediment	Х		Х		Х									
8	Sediment Conditions	Sediment, Stream Spawning Habitat, Spawning Gravel, Beach	8.1.a	Decreased Sediment Quantity	Dams	6c, 6d									Х		Х		Х		Х
	Common Conditions	Spawning Habitat (lake), Substrate, Benthic Habitat	8.1.b	Uncreased Sediment Quantity	Past and/or currrent land use practices/transportation corridor	6a, 6b								Х		Х		Х		Х	
			9.1	Temperature		9a, 9b	Temperature														
			9.1.a	Temperature (land use)	Land uses that impair riparian function/decrease streamflow	9a									Х		Х		Х		Х
			9.1.b	Temperature (dam reservoirs)	Large dam reservoirs	9b									Χ		Χ		Χ		X
9	Water Quality		9.2	Oxygen	Agricultural Chemicals, Urban and Industrial Practices		Oxygen														
			9.3	Turbidity		6a, 6b	Sediment	Х		Х		Х									
			9.3.a	Decreased Turbidity (dams)	Dams	6c									Х		Х		Х		X
			9.3.b	Increased Turbidity (land use)	Land use/rural roads	6a, 6b								Χ		Χ		Χ		Χ	
			9.4	pH																	
			9.5	Salinity			Salinity														
			10.1	Altered Hydrology		5a, 5b, 5c	Flow	х		Х		Х									
			10.1.a	I Altered Hydrology	Past and/or currrent land use practices/transportation corridor	5c								Х		Х		Х		Х	
			10.1.b	Altered Hydrology	Dams	5a, 5b									Х		Х		Х		Х
10	Water Quantity	Changes in Flow Regime, Spring Freshets, Piped Outfalls of Surface	10.2	Decreased Water Quantity		5a, 5b, 5d, 5e, 5f	Flow	Χ		Χ		Χ									
	,	and Ground Water, Withdrawals, Flow-Related Plume Changes	10.2.a	Decreased Water Quantity	Low-head hydro diversions, dams	5a, 5b									Х		Х		Х		Х
			10.2.b	Decreased Water Quantity	Irrigation and municipal withdrawals	5d, 5e															
			10.2.c	Decreased Water Quantity	Hatchery withdrawals	5f															
			10.3	Altered Flow Timing		5b, 5c	Flow	Х		Χ		Х									
			10.3a	Altered Flow Timing	Dams	5b									Х		Х		Х		Х
			10.3.b	Altered Flow Timing	Land use	5c								Х		Х		Х		Χ	
			11.1	Impaired abundance and diversity (targeted fishing)	Consumptive, targeted fishery	7a	Harvest														
11	Population Diversity	Genetic drift, loss of genetic diversity, artificail selection by hatchery personnel interbreeding	11.2	Impaired abundance and diversity (non-		7b	Harvest														
		natonery personner interpreeding	11.3		Stray hatchery fish interbreeding with wild fish	7c		Х													

					LCR Chu	ım ESU: Cas	cade Stratum														
								Clac	kamas	Sai	ndy	Cov	vlitz	Le	wis	Salmo	n Creek	Kala	ama	Wash	nougal
ID	Ecological Concern	Alternate Terms	ID	Ecological Concern Sub-Category	Threat	OR Plan Code	WA Plan Terms	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est
			1.1	Anthropogenic Barriers (dams)	Large Dams	4a, 4b, 6g	Obstructions														
1	Habitat Quantity	Connectivity, Access, Structure, Simplification, Availability	1.2	Anthropogenic Barriers (other)	Hatchery Weirs, Road Crossings, Small Dams, Diversions	4c, 4d, 4e	Obstructions	Х		Х											
			1.3	Natural Barriers	Water Falls, Sand Bar, Bar Breach, Log Jams, Steep Gradient		Obstructions														
			2.1	Turbine/bypass mortality	Dams																
			2.2	Predation		8a, 8b, 8c, 8d	Predation														
		Predation, Disease, Species	2.2.a	Predation (non-salmonid fish, marine mamals)	Dams	8a, 8d															
2	Direct Mortality	Interactions	2.2.b	Predation (birds)	Land use	8b															
			2.2.c	Predation (hatchery fish)	Hatcheries	8c			Χ		Χ										
			2.3	Pathogens	Disease, Sea Lice		Pathogens					?	?					,	?		
			2.4		Consumptive, targeted fishery/gillnet fisheries targeted at other species	7a, 7b	Harvest														
3	Toxic Contaminants	Pollution	3.1	water	Agricultural Chemicals, Urban and Industrial Practices	9c, 9d	Chemicals		Х		Х										
			3.2		Agricultural Chemicals, Urban and Industrial Practices	9c, 9d	Chemicals		Х		Х										
			4.1	Altered Primary Productivity	Dam Reservoirs	3a, 3b	Food		Х		Х							?			
4	Food	Competition, Prey Availability, Species Interactions	4.2	Competition	Smolts from all Columbia Basin hatcheries	1a	Competition														
			4.3	Altered Prey Composition and Diversity	Prey species/other species harvest		Food														
			5.1		Past and/or currrent land use practices	6e, 6f	Channel stability, habitat diversity, key habitat					х		х		х		х		х	
5	Riparian Condition	Impaired Riparian Function/Condition, Microclimate, Lack of Shade	5.2	LWD Recruitment		6e, 6f	Channel stability, Flow, Habitat Diversity					Х		х		Х		х		Х	
			5.2.b		Past and/or currrent land use practices																
			5.2.a	LWD Recruitment	Dams		Channel state Wite	<u> </u>													
			6.1	Side Channel and Wetland Conditions	Past and/or currrent land use practices/transportation corridor	6e, 6f	Channel stability, habitat diversity, key habitat					Х		Х		х		х		X	
			6.2	Floodplain Condition	Past and/or currrent land use practices/transportation corridor	6e, 6f	Channel stability, habitat diversity, key habitat					х		х		х		х		Х	
		High quality over-winter rearing	6.3	Estuary Conditions		3a, 3b, 5b, 6c, 6e	Food, Channel stability, habitat diversity, key habitat, flow						Х		х		Х		Х		Х
6	Peripheral and	habitat, Habitat Diversity, (Key) Habitat Quantity/Quality, Refugia	6.3.a	Competition from hatchery smolts	Hatcheries	1a															
		Habitat	6.3.b	Reduced macrodetrital inputs	Dam reservoirs	3a			Х		Х										
			6.3.c	Increased microdetrital inputs	Dam reservoirs	3b			Х		Х										
			6.3.d	Altered plume dynamics	Dams	5b			Х		Х										
			6.3.e		Dams	6c			Х		Х					_	_	_	_		
			6.3.f	Estuary habitat quality (complexity and diversity)	Dams	6e			Χ		Χ										1
			6.4	Nearshore Conditions																	

					LCR Chu	ım ESU: Cas	cade Stratum														
	Ecological Concern	Alternate Terms	ID	Ecological Concern Sub-Category	Threat	OR Plan Code	WA Plan Terms	Clac	kamas	Sar	ndy	Cov	/litz	Le	wis	Salmor	n Creek	Kala	ma	Wash	nougal
Ľ	Ecological Concern	Atternate remis	10	Ecological concern dub-category	Tilleat	OK Flair Code	WATIAITIEIIIS	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est
7	Channel Structure	Channel Conditions, Channel Form, Channel morphology, Channel Instability, Channel Stability, Loss	7.1	Bed and Channel Form	Past and/or currrent land use practices/transportation corridor	6e, 6f, 6g, 5b	Channel stability, habitat diversity, key habitat, flow		х		х	х	Х	х	Х	х	Х	х	Х	х	Х
	and Form	of Spawning Substrate due to high flow, Bedload Movement	7.2	Instream Structural Complexity	Past and/or currrent land use practices	6e, 6f, 6g, 5b	Channel stability, habitat diversity, key habitat, flow		Х		Х	Х	Х	Х	Х	Х	Х	Х	х	Х	Х
		Sediment, Stream Spawning	8.1	Sediment Quantitiy		6a, 6b, 6c, 6d	Sediment					Х		Х				Х		Х	
8	Sediment Conditions	Habitat, Spawning Gravel, Beach	8.1.a	Decreased Sediment Quantity	Dams	6c, 6d			Х		X									<u> </u>	
		Spawning Habitat (lake), Substrate, Benthic Habitat	8.1.b	Increased Sediment Quantity	Past and/or currrent land use practices/transportation corridor	6a, 6b		Х		Χ											
			9.1	Temperature		9a, 9b	Temperature							Х		Х		Х		· 	
			9.1.a	Temperature (land use)	Land uses that impair riparian function/decrease streamflow	9a			Х		Х										
			9.1.b	Temperature (dam reservoirs)	Large dam reservoirs	9b			Χ		Χ										
9	Water Quality		9.2	Oxygen	Agricultural Chemicals, Urban and Industrial Practices		Oxygen														
			9.3	Turbidity		6a, 6b	Sediment					X		Χ				Χ		Χ	
			9.3.a	Decreased Turbidity (dams)	Dams	6c			Х		Χ										
			9.3.b	Increased Turbidity (land use)	Land use/rural roads	6a, 6b		Х		Χ											
			9.4	pH																	
			9.5	Salinity			Salinity														
			10.1	Altered Hydrology		5a, 5b, 5c	Flow					х		Х		Х		х		Х	
			10.1.a		Past and/or currrent land use practices/transportation corridor	5c		Х		Х											
			10.1.b	Altered Hydrology	Dams	5a, 5b			Х		Х										
10	Water Quantity	Changes in Flow Regime, Spring Freshets, Piped Outfalls of Surface	10.2	Decreased Water Quantity		5a, 5b, 5d, 5e, 5f	Flow					Х		Х		Х		Х		Χ	
		and Ground Water, Withdrawals, Flow-Related Plume Changes	10.2.a	Decreased Water Quantity	Low-head hydro diversions, dams	5a, 5b			Х		Х										
			10.2.b	Decreased Water Quantity	Irrigation and municipal withdrawals	5d, 5e															
			10.2.c	Decreased Water Quantity	Hatchery withdrawals	5f															
			10.3	Altered Flow Timing		5b, 5c	Flow					Х		Χ		Χ		Х		Χ	
			10.3a	Altered Flow Timing	Dams	5b			Х		Х										
			10.3.b	Altered Flow Timing	Land use	5c		Χ		Χ											
			11.1	Impaired abundance and diversity (targeted fishing)	Consumptive, targeted fishery	7a	Harvest														
11	Population Diversity	Genetic drift, loss of genetic diversity, artificall selection by	11.2	Impaired abundance and diversity (non-	Gill net fisheries targeted at other species	7b	Harvest														
		hatchery personnel interbreeding	11.3	Impaired productivity and diversity	Stray hatchery fish interbreeding with wild fish	7c															

				LCR Chum E	SU: Gorge Stratum						
	Facility 10	Allerente Te	10			OD 51 6 1	MA Diser T	Lower	Gorge	Upper	Gorge
ID	Ecological Concern	Alternate Terms	ID	Ecological Concern Sub-Category	Threat	OR Plan Code	WA Plan Terms	Trib	Est	Trib	Est
			1.1	Anthropogenic Barriers (dams)	Large Dams	4a, 4b, 6g	Obstructions			х	х
1		Connectivity, Access, Structure, Simplification, Availability	1.2	Anthropogenic Barriers (other)	Hatchery Weirs, Road Crossings, Small Dams, Diversions	4c, 4d, 4e	Obstructions				
			1.3	Natural Barriers	Water Falls, Sand Bar, Bar Breach, Log Jams, Steep Gradient		Obstructions				
			2.1	Turbine/bypass mortality	Dams						
			2.2	Predation		8a, 8b, 8c, 8d	Predation				
		Production Discours Country	2.2.a	Predation (non-salmonid fish, marine mamals)	Dams	8a, 8d				Χ	
2	Direct Mortality	Predation, Disease, Species Interactions	2.2.b	Predation (birds)	Land use	8b					
			2.2.c	Predation (hatchery fish)	Hatcheries	8c			Χ	Χ	Χ
			2.3	Pathogens	Disease, Sea Lice		Pathogens			-	
			2.4	Harvest	Consumptive, targeted fishery/gillnet fisheries targeted at other species	7a, 7b	Harvest				
3	Toxic Contaminants	Pollution	3.1	Water	Agricultural Chemicals, Urban and Industrial Practices	9c, 9d	Chemicals		Х		Х
			3.2	Biota	Agricultural Chemicals, Urban and Industrial Practices	9c, 9d	Chemicals		Χ		Χ
			4.1	Altered Primary Productivity	Dam Reservoirs	3a, 3b	Food		Х		Х
4	Food	Competition, Prey Availability, Species Interactions	4.2	Competition	Smolts from all Columbia Basin hatcheries	1a	Competition				
			4.3	Altered Prey Composition and Diversity	Prey species/other species harvest		Food				
			5.1	Riparian Condition	Past and/or currrent land use practices	6e, 6f	Channel stability, habitat diversity, key habitat	X		х	
5	Riparian Condition	Impaired Riparian Function/Condition, Microclimate, Lack of Shade	5.2	LWD Recruitment		6e, 6f	Channel stability, Flow, Habitat Diversity	X		х	
			5.2.b	LWD Recruitment	Past and/or currrent land use practices						
			5.2.a	LWD Recruitment	Dams						
			6.1	Side Channel and Wetland Conditions	Past and/or currrent land use practices/transportation corridor	6e, 6f	Channel stability, habitat diversity, key habitat	Х		Х	
			6.2	Floodplain Condition	Past and/or currrent land use practices/transportation corridor	6e, 6f	Channel stability, habitat diversity, key habitat	x		х	
		High quality over-winter rearing	6.3	Estuary Conditions		3a, 3b, 5b, 6c, 6e	Food, Channel stability, habitat diversity, key habitat, flow				
6	Peripheral and	habitat, Habitat Diversity, (Key) Habitat Quantity/Quality, Refugia	6.3.a	Competition from hatchery smolts	Hatcheries	1a					
	Transitional Habitats	Habitat Quantity/Quanty, Rerugia	6.3.b	Reduced macrodetrital inputs	Dam reservoirs	3a			Х		Х
			6.3.c	Increased microdetrital inputs	Dam reservoirs	3b			Х		Х
			6.3.d	Altered plume dynamics	Dams	5b			Х		Х
			6.3.e	Impaired sediment/sandf routing		6c			Х		Х
			6.3.f	Estuary habitat quality (complexity and diversity)	Dams	6e			Χ		Χ
			6.4	Nearshore Conditions							

				LCR Chum E	SU: Gorge Stratum						
ID	Ecological Concern	Alternate Terms	ID	Ecological Concern Sub-Category	Threat	OR Plan Code	WA Plan Terms	Lower	r Gorge	Upper	Gorge
L	Ecological Concern	Alternate Terms	יוו	Ecological Colicerti Sub-Category	Tilleat	OK Flair Code	WA Flair Terms	Trib	Est	Trib	Est
7	Channel Structure	Channel Conditions, Channel Form, Channel morphology, Channel	7.1	Bed and Channel Form	Past and/or currrent land use practices/transportation corridor	6e, 6f, 6g, 5b	Channel stability, habitat diversity, key habitat, flow	х	Х	Х	Х
ľ	and Form	Instability, Channel Stability, Loss of Spawning Substrate due to high flow, Bedload Movement	7.2	Instream Structural Complexity	Past and/or currrent land use practices	6e, 6f, 6g, 5b	Channel stability, habitat diversity, key habitat, flow	х	х	х	х
		Sediment, Stream Spawning	8.1	Sediment Quantitiy		6a, 6b, 6c, 6d	Sediment				
8	Sediment Conditions	Habitat, Spawning Gravel, Beach	8.1.a	Decreased Sediment Quantity	Dams	6c, 6d			Х		Х
		Spawning Habitat (lake), Substrate, Benthic Habitat	8.1.b	Increased Sediment Quantity	Past and/or currrent land use practices/transportation corridor	6a, 6b					
			9.1	Temperature		9a, 9b	Temperature				
			9.1.a	Temperature (land use)	Land uses that impair riparian function/decrease streamflow	9a			Х		Х
			9.1.b	Temperature (dam reservoirs)	Large dam reservoirs	9b			Χ		Χ
9	Water Quality		9.2	Oxygen	Agricultural Chemicals, Urban and Industrial Practices		Oxygen				
			9.3	Turbidity		6a, 6b	Sediment				
			9.3.a	Decreased Turbidity (dams)	Dams	6c			Х		Х
			9.3.b	Increased Turbidity (land use)	Land use/rural roads	6a, 6b					
			9.4	рН							
			9.5	Salinity			Salinity				
			10.1	Altered Hydrology		5a, 5b, 5c	Flow				
			10.1.a	Altered Hydrology	Past and/or currrent land use practices/transportation corridor	5c		Х		Х	
			10.1.b	Altered Hydrology	Dams	5a, 5b			Х		Х
10	Water Quantity	Changes in Flow Regime, Spring Freshets, Piped Outfalls of Surface	10.2	Decreased Water Quantity		5a, 5b, 5d, 5e, 5f	Flow				
"		and Ground Water, Withdrawals, Flow-Related Plume Changes	10.2.a	Decreased Water Quantity	Low-head hydro diversions, dams	5a, 5b			Х		Х
			10.2.b	Decreased Water Quantity	Irrigation and municipal withdrawals	5d, 5e					
			10.2.c	Decreased Water Quantity	Hatchery withdrawals	5f					
			10.3	Altered Flow Timing		5b, 5c	Flow				
			10.3a	Altered Flow Timing	Dams	5b			Х		Х
			10.3.b	Altered Flow Timing	Land use	5c		Χ		Χ	
			11.1	Impaired abundance and diversity (targeted fishing)	Consumptive, targeted fishery	7a	Harvest				
11	Population Diversity	Genetic drift, loss of genetic diversity, artificall selection by	11.2		Gill net fisheries targeted at other species	7b	Harvest				
		hatchery personnel interbreeding	11.3	Impaired productivity and diversity	Stray hatchery fish interbreeding with wild fish	7c					
								_			_

								LCR S	Steelhe	ead DF	PS: Ca	scade	Winter	Stratu	ım																				
								Clack	kamas	Sar	ndy	Lower (Cowlitz	Cowe	eman	Toutle	e (SF)	Toutle	(NF)	Upper C	owlitz	Cis	ous	Tilt	ton	Kala	ama	Lewis	(NF)	Lewis	(EF)	Salmon	Creek	Washo	ugal
ID	cological Concern	Alternate Terms	ID	Ecological Concern Sub-Category	Threat	OR Plan Code	WA Plan Terms	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est
			1.1 An	nthropogenic Barriers (dams)	Large Dams	4a, 4b, 6g	Obstructions	Χ		Χ										Х		Х		Х				Х							
1	bitat Quantity	Connectivity, Access, Structure, Simplification, Availability	1.2 An	nthropogenic Barriers (other)	Hatchery Weirs, Road Crossings, Small Dams, Diversions	4c, 4d, 4e	Obstructions			Х																									
			1.3 Na	atural Barriers	Water Falls, Sand Bar, Bar Breach, Log Jams, Steep Gradient		Obstructions																												
			2.1 Tu	urbine/bypass mortality	Dams																														
			2.2 Pro	redation		8a, 8b, 8c, 8d	Predation					Х	Χ	Х	Х	Χ	Х	Х	Х	Х	Х	Х	Х	Χ	Х	Х	Х	Х	Χ	Х	Χ	Х	Х	Х	Χ
		Predation, Disease, Species		redation (non-salmonid fish, marine amals)	Dams	8a, 8d																													
2	rect Mortality	Interactions	2.2.b Pre	redation (birds)	Land use	8b			Х		Х										i														
			2.2.c Pre	redation (hatchery fish)	Hatcheries	8c																													
		[2.3 Pa	athogens	Disease, Sea Lice		Pathogens					?	3	?	?	?	3	?	?	?	?	?	?	?	?	?	?	?	?	3	?	?	?	3	?
			2.4 Ha		Consumptive, targeted fishery/gillnet fisheries targeted at other species	7a, 7b	Harvest		Х		Х		?		?		?		?		?		?		?		?		?		?		?		?
3	xic Contaminants	Pollution	3.1 Wa	ater	industrial Practices	9c, 9d	Chemicals		Х		Х																								
			3.2 Bio	iota	Agricultural Chemicals, Urban and Industrial Practices	9c, 9d	Chemicals		Х		Х																								
			4.1 Alt	Itered Primary Productivity	Dam Reservoirs	3a, 3b	Food		Х		Х					?	?	?	?	?	?	?	?	?	?										
4	od	Competition, Prey Availability, Species Interactions		ompetition	Smolts from all Columbia Basin hatcheries	1a	Competition		Χ		Х	?	?			?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?
				Itered Prey Composition and iversity	Prey species/other species harvest		Food					?	?	?	?	?	?	?	?											?	?			?	?
			5.1 Rij	iparian Condition	Past and/or currrent land use practices		Channel stability, habitat diversity, key habitat	х		х		х		х		х		х		х		х		х		х		х		х		х		х	
5	parian Condition	Impaired Riparian Function/Condition, Microclimate, Lack of Shade	5.2 LW	WD Recruitment		6e, 6f	Channel stability, Flow, Habitat Diversity	х		х		х		х		х		Х		х		х		Х		Х		Х		Х		Х		Х	
			5.2.b LW	WD Recruitment	Past and/or currrent land use practices																														
			5.2.a LW	WD Recruitment	Dams																														
			6.1 Sid	ide Channel and Wetland Conditions	Past and/or currrent land use practices/transportation corridor	6e, 6f	Channel stability, habitat diversity, key habitat	х		Х		Х		Х		Х		Х		Х		X		Х		Х		Х		Х		Х		Х	
			6.2 Flo	loodplain Condition	Past and/or currrent land use practices/transportation corridor	6e, 6f	Channel stability, habitat diversity, key habitat	х		х		х		X		х		х		х		х		х		х		Х		х		X		X	
		High quality over-winter rearing	6.3 Es	stuary Conditions		3a, 3b, 5b, 6c, 6e, 6f	Food, Channel stability, habitat diversity, key habitat, flow						Х		Х		Х		Х		х		Х		Х		Х		Х		Х		Х		Х
6	ripheral and	habitat, Habitat Diversity, (Key) Habitat Quantity/Quality, Refugia	6.3.a Co	ompetition from hatchery smolts	Hatcheries	1a			Х		Х	1	I	I	I	T		I			I		T					1 I]
	ansitional Habitats	Habitat Quantity/Quality, Refugia Habitat	6.3.b Re	educed macrodetrital inputs	Dam reservoirs	3a			Х		Х																								
		[6.3.c Inc	creased microdetrital inputs	Dam reservoirs	3b			Х		Х	1		T	T	T					T														
			6.3.d Alt	Itered plume dynamics	Dams	5b			Х		Х																								
				npaired sediment/sandf routing	Dams	6c			Х		Х																								
		[6.3.f Es	stuary habitat quality (complexity and versity)	Dams	6e			Х		Х																	Ш							
			6.4 Ne	earshore Conditions																															

ID Ecolog	gical Concern	Alternate Terms										scade																						
is Ecolog	gicai concern		ID	Ecological Concern Sub-Category	Threat	OR Plan Code	WA Plan Terms	Clack	kamas	San	dy	Lower 0	Cowlitz	Cowe	eman	Toutle	(SF)	Toutle (NF)	Upper Co	owlitz	Cispu	ıs	Tilton		Kalama	Le	wis (NF)	Lewis	s (EF)	Salmon	Creek	Washou	ugal
		Attenute rems		Ecological Content Cub Category	Tineat	OK I Idii Gode		Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib	Est	Trib I	Est T	rib E	st Trib	Est	Trib	Est	Trib	Est	Trib	Est
Channel	ļ	Channel Conditions, Channel Form, Channel morphology, Channel Instability, Channel	7.1	Bed and Channel Form	Past and/or currrent land use practices/transportation corridor	6e, 6f, 6g, 5b	Channel stability, habitat diversity, key habitat, flow	х	х	х	х	х	Х	х	Х	х	Х	х	х	х	х	х	Х	х	Х	x :	x x	Х	х	Х	х	Х	x	Х
and Forr		Stability, Loss of Spawning Substrate due to high flow, Bedload Movement	7.2	Instream Structural Complexity	Past and/or currrent land use practices	6e, 6f, 6g, 5b	Channel stability, habitat diversity, key habitat, flow	х	х	х	х	х	Х	х	х	х	х	х	х	х	х	х	х	х	х	x	x x	х	x	х	х	х	х	х
			8.1	Sediment Quantitiy		6a, 6b, 6c, 6d	Sediment					Х		Х		Х		Х		Χ		Χ		Х		Х	Х		Х		Х		Х	
8 Sedime	ent Conditions	Sediment, Stream Spawning Habitat, Spawning Gravel, Beach	8.1.a	Decreased Sediment Quantity	Dams	6c, 6d			Х	Χ	Х																							
o deallies	in Conditions	Spawning Habitat (lake), Substrate, Benthic Habitat	8.1.b	Increased Sediment Quantity	Past and/or currrent land use practices/transportation corridor	6a, 6b		Х		Х																								
			9.1	Temperature		9a, 9b	Temperature					Х		Х		Х		Х		Χ		Χ		X		X	X		X		X		X	
			9.1.a	Temperature (land use)	Land uses that impair riparian function/decrease streamflow	9a		Χ	Х		Х																						\Box	
			9.1.b	Temperature (dam reservoirs)	Large dam reservoirs	9b		Χ	Х		Χ																							
9 Water Q	tuality		9.2	Oxygen	Agricultural Chemicals, Urban and Industrial Practices		Oxygen													?		?												
			9.3	Turbidity		6a, 6b, 6c	Sediment					Х		Х		Х		Х		Χ		Χ		X		X	Х		Х		Х		X	
			9.3.a	Decreased Turbidity (dams)	Dams	6c			Х		Х																							
			9.3.b	Increased Turbidity (land use)	Land use/rural roads	6a, 6b		Χ		Χ																								
			9.4	рН																														
			9.5	Salinity			Salinity																									\rightarrow		
			10.1	Altered Hydrology		5a, 5b, 5c	Flow					Х		Х		Х		Х		X		x		x		X	Х		Х		Х		Х	
			10.1.a	Altered Hydrology	Past and/or currrent land use practices/transportation corridor	5c		Х		Х																								
			10.1.b	Altered Hydrology	Dams	5a, 5b	Π		Х	1	Х	T		1		I			Γ	ſ														
10 Water Q		Changes in Flow Regime, Spring Freshets, Piped Outfalls of Surface	10.2	Decreased Water Quantity		5a, 5b, 5d, 5e, 5f	Flow					Χ		Χ		Χ		Χ		Х		Х		X		X	Х		Χ		Χ		Χ	
	-	and Ground Water, Withdrawals, Flow-Related Plume Changes	10.2.a	Decreased Water Quantity	Low-head hydro diversions, dams	5a, 5b			Х		Х																							
			10.2.b	Decreased Water Quantity	Irrigation and municipal withdrawals	5d, 5e				Χ																								
			10.2.c	Decreased Water Quantity	Hatchery withdrawals	5f																												
			10.3	Altered Flow Timing		5b, 5c	Flow					Χ		Χ		Χ		Χ		Х		Х		X		X	Х		Χ		Χ		Χ	
			10.3a	Altered Flow Timing	Dams	5b			Х		Х																							
			10.3.b	Altered Flow Timing	Land use	5c		Χ		Χ		T		1		T																		
		Constitution drifts I f	11.1	Impaired abundance and diversity (targeted fishing)	Consumptive, targeted fishery	7a	Harvest																											
11 Populati	ion Diversity	Genetic drift, loss of genetic diversity, artificail selection by hatchery personnel interbreeding	11.2	Impaired abundance and diversity (non- targeted fishing)	Gill net fisheries targeted at other species	7b	Harvest		Х		Х		Х		Х		Х		Х		Х		Х		Х		X	Х		Х		Х		Х
		natonery personner interpreeding	11.3	Impaired productivity and diversity	Stray hatchery fish interbreeding with wild fish	7c		Χ		Х		Х		Χ		Х		Х		Х		Х		Х			Х		Х		Х		Х	

				LCR Steelhe	ad DPS: Gorge Winter Str	atum							
i				5 1 1 10 0101				Lower	Gorge	Upper	Gorge	Но	od
ID	Ecological Concern	Alternate Terms	ID	Ecological Concern Sub-Category	Threat	OR Plan Code	WA Plan Terms	Trib	Est	Trib	Est	Trib	Est
			1.1	Anthropogenic Barriers (dams)	Large Dams	4a, 4b, 6g	Obstructions			Х		Х	
1	Habitat Quantity	Connectivity, Access, Structure, Simplification, Availability	1.2	Anthropogenic Barriers (other)	Hatchery Weirs, Road Crossings, Small Dams, Diversions	4c, 4d, 4e	Obstructions	Х		Х			
			1.3	Natural Barriers	Water Falls, Sand Bar, Bar Breach, Log Jams, Steep Gradient		Obstructions						
			2.1	Turbine/bypass mortality	Dams								
			2.2	Predation		8a, 8b, 8c, 8d	Predation						
		Dradetian Disease Cassics	2.2.a	Predation (non-salmonid fish, marine mamals)	Dams	8a, 8d				Х	Х	Х	Х
2	Direct Mortality	Predation, Disease, Species Interactions	2.2.b	Predation (birds)	Land use	8b			Χ		Χ		Χ
			2.2.c	Predation (hatchery fish)	Hatcheries	8c							
			2.3	Pathogens	Disease, Sea Lice		Pathogens						
			2.4	Harvest	Consumptive, targeted fishery/gillnet fisheries targeted at other species	7a, 7b	Harvest		Х		Х		Х
3	Toxic Contaminants	Pollution	3.1	Water	Agricultural Chemicals, Urban and Industrial Practices	9c, 9d	Chemicals		Х		Х	Х	Х
			3.2	Biota	Agricultural Chemicals, Urban and Industrial Practices	9c, 9d	Chemicals		Х		Х	Х	Х
			4.1	Altered Primary Productivity	Dam Reservoirs	3a, 3b	Food		Χ		Χ		Х
4	FOOd	Competition, Prey Availability, Species Interactions	4.2	Competition	Smolts from all Columbia Basin hatcheries	1a	Competition		Χ	Χ	Χ	Χ	Χ
		Species interactions	4.3	Altered Prey Composition and Diversity	Prey species/other species harvest		Food						
			5.1	Riparian Condition	Past and/or currrent land use practices	6e, 6f	Channel stability, habitat diversity, key habitat	х		х		х	
5	Riparian Condition	Impaired Riparian Function/Condition, Microclimate, Lack of Shade	5.2	LWD Recruitment		6e, 6f	Channel stability, Flow, Habitat Diversity	х		х		х	
			5.2.b	LWD Recruitment	Past and/or currrent land use practices								
			5.2.a	LWD Recruitment	Dams								
			6.1	Side Channel and Wetland Conditions	Past and/or currrent land use practices/transportation corridor	6e, 6f	Channel stability, habitat diversity, key habitat	х		X		Х	
			6.2	Floodplain Condition	Past and/or currrent land use practices/transportation corridor	6e, 6f	Channel stability, habitat diversity, key habitat	х		х		х	
		High quality over-winter rearing	6.3	Estuary Conditions		3a, 3b, 5b, 6c, 6e	Food, Channel stability, habitat diversity, key habitat, flow						
6	Peripheral and	habitat, Habitat Diversity, (Key)	6.3.a	Competition from hatchery smolts	Hatcheries	1a			Χ		Χ		Х
		Habitat Quantity/Quality, Refugia Habitat	6.3.b	Reduced macrodetrital inputs	Dam reservoirs	3a			Х		Х		Х
			6.3.c	Increased microdetrital inputs	Dam reservoirs	3b			Х		Х		Х
			6.3.d	Altered plume dynamics	Dams	5b			Х		Х		Х
			6.3.e	Impaired sediment/sandf routing	Dams	6c			Х		Х		Х
			6.3.f	Estuary habitat quality (complexity and diversity)	Dams	6e			Χ		Χ		Х
			6.4	Nearshore Conditions									

				LCR Steelhe	ad DPS: Gorge Winter Str	atum							
ID	Ecological Concern	Alternate Terms	ID	Ecological Concern Sub-Category	Threat	OR Plan Code	WA Plan Terms	Lower	Gorge	Upper	Gorge	Но	od
				g				Trib	Est	Trib	Est	Trib	Est
7		Channel Conditions, Channel Form, Channel morphology, Channel Instability, Channel Stability, Loss	7.1	Bed and Channel Form	Past and/or currrent land use practices/transportation corridor	6e, 6f, 6g, 5b	Channel stability, habitat diversity, key habitat, flow	х	х	x	х	х	Х
'	and Form	of Spawning Substrate due to high flow, Bedload Movement	7.2	Instream Structural Complexity	Past and/or currrent land use practices	6e, 6f, 6g, 5b	Channel stability, habitat diversity, key habitat, flow	Х	х	х	х	х	х
			8.1	Sediment Quantitiy		6a, 6b, 6c, 6d	Sediment						
		Sediment, Stream Spawning	8.1.a	Decreased Sediment Quantity	Dams	6c, 6d			Х		Х		Χ
8	Sediment Conditions	Habitat, Spawning Gravel, Beach Spawning Habitat (lake), Substrate, Benthic Habitat	8.1.b	Increased Sediment Quantity	Past and/or currrent land use practices/transportation corridor	6a, 6b						Х	
			8.1.c	Increased Sediment Quantity	Dam removal								
			9.1	Temperature		9a, 9b	Temperature						
			9.1.a	Temperature (land use)	Land uses that impair riparian function/decrease streamflow	9a			Х		Х	Х	Х
			9.1.b	Temperature (dam reservoirs)	Large dam reservoirs	9b			Χ		Χ		Χ
9	Water Quality		9.2	Oxygen	Agricultural Chemicals, Urban and Industrial Practices		Oxygen						
			9.3	Turbidity		6a, 6b, 6c	Sediment						
			9.3.a	Decreased Turbidity (dams)	Dams	6c			Х		Х		Х
			9.3.b	Increased Turbidity (land use)	Land use/rural roads	6a, 6b						Χ	
			9.4	рН									
			9.5	Salinity			Salinity						
			10.1	Altered Hydrology		5a, 5b, 5c	Flow						
			10.1.a	Altered Hydrology	Past and/or currrent land use practices/transportation corridor	5c		Χ		х		х	
			10.1.b	Altered Hydrology	Dams	5a, 5b			Х		Х	Χ	Х
10		Changes in Flow Regime, Spring Freshets, Piped Outfalls of Surface	10.2	Decreased Water Quantity		5a, 5b, 5d, 5e, 5f	Flow						
"		and Ground Water, Withdrawals, Flow-Related Plume Changes	10.2.a	Decreased Water Quantity	Low-head hydro diversions, dams	5a, 5b			Х		Х	Χ	Χ
			10.2.b	Decreased Water Quantity	Irrigation and municipal withdrawals	5d, 5e						Х	
			10.2.c	Decreased Water Quantity	Hatchery withdrawals	5f		Х					
			10.3	Altered Flow Timing		5b, 5c	Flow						
			10.3a	Altered Flow Timing	Dams	5b			Х		Х		Х
			10.3.b	Altered Flow Timing	Land use	5c		Χ		Χ		Χ	
		Genetic drift, loss of genetic	11.1	Impaired abundance and diversity (targeted fishing)	Consumptive, targeted fishery	7a	Harvest				Χ		Х
11	Population Diversity	diversity, artificail selection by	11.2	Impaired abundance and diversity (non- targeted fishing)	Gill net fisheries targeted at other species	7b	Harvest		Х		Χ		Χ
L		hatchery personnel interbreeding	11.3	Impaired productivity and diversity	Stray hatchery fish interbreeding with wild fish	7c		Х		Χ		Χ	

				LCR Ste	elhead DPS: Cascade Sui	mmer Stratur	n								
_	Facility is a Communication	Alta-mata Tama		Facility is a Community Code Code Code	Thoras	OD Diese Oe de	WA Blow Towns	Kala	ama	Lewis	(NF)	Lewis	s (EF)	Wash	ougal
ID	Ecological Concern	Alternate Terms	ID	Ecological Concern Sub-Category	Threat	OR Plan Code	WA Plan Terms	Trib	Est	Trib	Est	Trib	Est	Trib	Est
			1.1	Anthropogenic Barriers (dams)	Large Dams	4a, 4b, 6g	Obstructions			Х	Х				
1 H	labitat Quantity	Connectivity, Access, Structure, Simplification, Availability	1.2	Anthropogenic Barriers (other)	Hatchery Weirs, Road Crossings, Small Dams, Diversions	4c, 4d, 4e	Obstructions								
			1.3	Natural Barriers	Water Falls, Sand Bar, Bar Breach, Log Jams, Steep Gradient		Obstructions								
			2.1	Turbine/bypass mortality	Dams										
			2.2	Predation		8a, 8b, 8c, 8d	Predation	Χ	Χ	Χ	Χ	Х	Χ	Χ	Х
		Dradetian Disease Cassics	2.2.a	Predation (non-salmonid fish, marine mamals)	Dams	8a, 8d									
2 0	Direct Mortality	Predation, Disease, Species Interactions	2.2.b	Predation (birds)	Land use	8b									
			2.2.c	Predation (hatchery fish)	Hatcheries	8c									
			2.3	Pathogens	Disease, Sea Lice		Pathogens							?	?
			2.4	Harvest	Consumptive, targeted fishery/gillnet fisheries targeted at other species	7a, 7b	Harvest		Х		Х		Х		Х
3 T	Foxic Contaminants	Pollution	3.1	Water	Agricultural Chemicals, Urban and Industrial Practices	9c, 9d	Chemicals								
			3.2	Biota	Agricultural Chemicals, Urban and Industrial Practices	9c, 9d	Chemicals								
			4.1	Altered Primary Productivity	Dam Reservoirs	3a, 3b	Food								
4 F	ood	Competition, Prey Availability,	4.2	Competition	Smolts from all Columbia Basin hatcheries	1a	Competition			٠.		?		?	
		Species Interactions	4.3	Altered Prey Composition and Diversity	Prey species/other species harvest		Food								
			5.1	Riparian Condition	Past and/or currrent land use practices	6e, 6f	Channel stability, habitat diversity, key habitat	х		х		х		х	
5 R	Riparian Condition	Impaired Riparian Function/Condition, Microclimate, Lack of Shade	5.2	LWD Recruitment		6e, 6f	Channel stability, Flow, Habitat Diversity	х		х		х		Х	
			5.2.b	LWD Recruitment	Past and/or currrent land use practices										
ightharpoonup			5.2.a	LWD Recruitment	Dams										
			6.1	Side Channel and Wetland Conditions	Past and/or currrent land use practices/transportation corridor	6e, 6f	Channel stability, habitat diversity, key habitat	Х		Х		Х		Х	
			6.2	Floodplain Condition	Past and/or currrent land use practices/transportation corridor		Channel stability, habitat diversity, key habitat	х		х		х		х	
		High quality over-winter rearing	6.3	Estuary Conditions		3a, 3b, 5b, 6c, 6e	Food, Channel stability, habitat diversity, key habitat, flow		Х		Х		Х		х
	Peripheral and	habitat, Habitat Diversity, (Key) Habitat Quantity/Quality, Refugia	6.3.a	Competition from hatchery smolts	Hatcheries	1a									
		Habitat	6.3.b	Reduced macrodetrital inputs	Dam reservoirs	3a									
	l		6.3.c	Increased microdetrital inputs	Dam reservoirs	3b									1
			6.3.d	Altered plume dynamics	Dams	5b									
			6.3.e	Impaired sediment/sandf routing	Dams	6c									
			6.3.f	Estuary habitat quality (complexity and diversity)	Dams	6e									
			6.4	Nearshore Conditions											

				LCR Ste	elhead DPS: Cascade Su	mmer Stratur	n								
ID	Ecological Concern	Alternate Terms	ID	Ecological Concern Sub-Category	Threat	OR Plan Code	WA Plan Terms	Kala	ama	Lewis	(NF)	Lewis	(EF)	Wash	ougal
	Ecological Concern	Alternate Terms	טו	Ecological Concern Sub-Category	Tilleat	OR Plan Code	WA Plati Terms	Trib	Est	Trib	Est	Trib	Est	Trib	Est
7	Channel Structure	Channel Conditions, Channel Form, Channel morphology, Channel Instability, Channel Stability, Loss	7.1	Red and Channel Form	Past and/or currrent land use practices/transportation corridor	6e, 6f, 6g, 5b	Channel stability, habitat diversity, key habitat, flow	х	X	x	Х	х	Х	x	Х
	and Form	flow, Bedload Movement	7.2	Instream Structural Complexity	Past and/or currrent land use practices	6e, 6f, 6g, 5b	Channel stability, habitat diversity, key habitat, flow	х	Х	х	Х	х	Х	х	Х
		Ondianant Otanana On annina	8.1	Sediment Quantitiy		6a, 6b, 6c, 6d	Sediment	Х				Х		Х	
8	Sediment Conditions	Sediment, Stream Spawning Habitat, Spawning Gravel, Beach	8.1.a	Decreased Sediment Quantity	Dams	6c, 6d									
	Sediment Conditions	Spawning Habitat (lake), Substrate, Benthic Habitat	8.1.b	Increased Sediment Quantity	Past and/or currrent land use practices/transportation corridor	6a, 6b									
			9.1	Temperature		9a, 9b	Temperature					Х		Х	
			9.1.a	Temperature (land use)	Land uses that impair riparian function/decrease streamflow	9a									
			9.1.b	Temperature (dam reservoirs)	Large dam reservoirs	9b									
9	Water Quality		9.2	Oxygen	Agricultural Chemicals, Urban and Industrial Practices		Oxygen								
			9.3	Turbidity		6a, 6b, 6c	Sediment	Χ				Χ		Х	
			9.3.a	Decreased Turbidity (dams)	Dams	6c									
			9.3.b	Increased Turbidity (land use)	Land use/rural roads	6a, 6b									
			9.4	рН											
			9.5	Salinity			Salinity								
			10.1	Altered Hydrology		5a, 5b, 5c	Flow	Х				Х		Х	
			10.1.a	Altered Hydrology	Past and/or currrent land use practices/transportation corridor	5c									
		Changes in Flaw Basima Susing	10.1.b	Altered Hydrology	Dams	5a, 5b									
10	Water Quantity	Changes in Flow Regime, Spring Freshets, Piped Outfalls of Surface	10.2	Decreased Water Quantity		5a, 5b, 5d, 5e, 5f	Flow	Χ				Χ		Χ	
		and Ground Water, Withdrawals, Flow-Related Plume Changes	10.2.a	Decreased Water Quantity	Low-head hydro diversions, dams	5a, 5b									
			10.2.b	Decreased Water Quantity	Irrigation and municipal withdrawals	5d, 5e									
			10.2.c	Decreased Water Quantity	Hatchery withdrawals	5f									
			10.3	Altered Flow Timing		5b, 5c	Flow	Χ				Χ		Χ	
			10.3a	Altered Flow Timing	Dams	5b									
			10.3.b	Altered Flow Timing	Land use	5c									
		Genetic drift, loss of genetic	11.1		Consumptive, targeted fishery	7a	Harvest								
11	Population Diversity	diversity, artifical selection by hatchery personnel interbreeding	11.2	Impaired abundance and diversity (non- targeted fishing)	Gill net fisheries targeted at other species	7b	Harvest		Х		Х		Х		Х
		natonery personner interpreeding	11.3	Impaired productivity and diversity	Stray hatchery fish interbreeding with wild fish	7c				Х		Χ		Χ	

				LCR Steelhead DPS	6: Gorge Summer Stratum						
	Facility is a Community	Alta-mata Tamas	ı,	F1	-t	OD Bloss On de	MA Dieu Terre	W	ind	Но	od
ID	Ecological Concern	Alternate Terms	ID	Ecological Concern Sub-Category	Threat	OR Plan Code	WA Plan Terms	Trib	Est	Trib	Est
			1.1	Anthropogenic Barriers (dams)	Large Dams	4a, 4b, 6g	Obstructions	Χ	Χ	Χ	Χ
1	Habitat Quantity	Connectivity, Access, Structure, Simplification, Availability	1.2	Anthropogenic Barriers (other)	Hatchery Weirs, Road Crossings, Small Dams, Diversions	4c, 4d, 4e	Obstructions				
			1.3	Natural Barriers	Water Falls, Sand Bar, Bar Breach, Log Jams, Steep Gradient		Obstructions				
			2.1	Turbine/bypass mortality	Dams						
			2.2	Predation		8a, 8b, 8c, 8d	Predation	Х	Χ		
		Dradatian Diagona Supplies	2.2.a	Predation (non-salmonid fish, marine mamals)	Dams	8a, 8d				Х	Х
2	Direct Mortality	Predation, Disease, Species Interactions	2.2.b	Predation (birds)	Land use	8b					Χ
			2.2.c	Predation (hatchery fish)	Hatcheries	8c					
			2.3	Pathogens	Disease, Sea Lice		Pathogens	?	?		
			2.4	Harvest	Consumptive, targeted fishery/gillnet fisheries targeted at other species	7a, 7b	Harvest	•	X		Х
3	Toxic Contaminants	Pollution	3.1	Water	Agricultural Chemicals, Urban and Industrial Practices	9c, 9d	Chemicals			Х	Х
3	TOXIC CONTAININANTS	Politicon	3.2	Biota	Agricultural Chemicals, Urban and Industrial Practices	9c, 9d	Chemicals			Х	Х
			4.1	Altered Primary Productivity	Dam Reservoirs	3a, 3b	Food				Х
4	Food	Competition, Prey Availability, Species Interactions	4.2	Competition	Smolts from all Columbia Basin hatcheries	1a	Competition	?	?	Χ	Х
			4.3	Altered Prey Composition and Diversity	Prey species/other species harvest		Food				
			5.1	Riparian Condition	Past and/or currrent land use practices	6e, 6f	Channel stability, habitat diversity, key habitat	Х		Х	
5	Riparian Condition	Impaired Riparian Function/Condition, Microclimate, Lack of Shade	5.2	LWD Recruitment		6e, 6f	Channel stability, Flow, Habitat Diversity	х		Х	
			5.2.b	LWD Recruitment	Past and/or currrent land use practices						
			5.2.a	LWD Recruitment	Dams						
			6.1	Side Channel and Wetland Conditions	Past and/or currrent land use practices/transportation corridor	6e, 6f	Channel stability, habitat diversity, key habitat	Х		X	
			6.2	Floodplain Condition	Past and/or currrent land use practices/transportation corridor	6e, 6f	Channel stability, habitat diversity, key habitat	Х		х	
		High quality over-winter rearing	6.3	Estuary Conditions		3a, 3b, 5b, 6c, 6e, 6f	Food, Channel stability, habitat diversity, key habitat, flow		X		
6	Peripheral and Transitional Habitats	habitat, Habitat Diversity, (Key) Habitat Quantity/Quality, Refugia	6.3.a	Competition from hatchery smolts	Hatcheries	1a					Χ
		Habitat	6.3.b	Reduced macrodetrital inputs	Dam reservoirs	3a					Х
			6.3.c	Increased microdetrital inputs	Dam reservoirs	3b					Х
			6.3.d	Altered plume dynamics	Dams	5b					Х
			6.3.e	Impaired sediment/sandf routing	Dams	6c					Х
			6.3.f	Estuary habitat quality (complexity and diversity)	Dams	6e					Χ
			6.4	Nearshore Conditions							

				LCR Steelhead DPS	S: Gorge Summer Stratum						
ID	Ecological Concorn	Alternate Terms	ID	Ecological Concorn Sub-Category	Threat	OR Plan Code	WA Plan Terms	W	ind	Но	od
שו	Ecological Concern	Alternate Ferms	ID	Ecological Concern Sub-Category	Threat	OR Plan Code	WA Plan Terms	Trib	Est	Trib	Est
7	Channel Structure	Channel Conditions, Channel Form, Channel morphology, Channel Instability, Channel Stability, Loss	7.1	Bed and Channel Form	Past and/or currrent land use practices/transportation corridor	6e, 6f, 6g, 5b	Channel stability, habitat diversity, key habitat, flow	х	х	х	х
		of Spawning Substrate due to high flow, Bedload Movement	7.2	Instream Structural Complexity	Past and/or currrent land use practices	6e, 6f, 6g, 5b	Channel stability, habitat diversity, key habitat, flow	х	х	х	Х
			8.1	Sediment Quantitiy		6a, 6b, 6c, 6d	Sediment	X			
		Sediment, Stream Spawning	8.1.a	Decreased Sediment Quantity	Dams	6c, 6d					X
8	Sediment Conditions	Habitat, Spawning Gravel, Beach Spawning Habitat (lake), Substrate, Benthic Habitat	8.1.b	Increased Sediment Quantity	Past and/or currrent land use practices/transportation corridor	6a, 6b				Х	
			8.1.c	Increased Sediment Quantity	Dam removal						
			9.1	Temperature		9a, 9b	Temperature	Х			
			9.1.a	Temperature (land use)	Land uses that impair riparian function/decrease streamflow	9a				Х	Х
			9.1.b	Temperature (dam reservoirs)	Large dam reservoirs	9b					Χ
9	Water Quality		9.2	Oxygen	Agricultural Chemicals, Urban and Industrial Practices		Oxygen				
			9.3	Turbidity		6a, 6b, 6c	Sediment	Х			
			9.3.a	Decreased Turbidity (dams)	Dams	6c					Х
			9.3.b	Increased Turbidity (land use)	Land use/rural roads	6a, 6b				Χ	
			9.4	рН							
			9.5	Salinity			Salinity				
			10.1	Altered Hydrology		5a, 5b, 5c	Flow	Х			
			10.1.a	Altered Hydrology	Past and/or currrent land use practices/transportation corridor	5c				Х	
			10.1.b	Altered Hydrology	Dams	5a, 5b				Χ	Х
10	Water Quantity	Changes in Flow Regime, Spring Freshets, Piped Outfalls of Surface	10.2	Decreased Water Quantity		5a, 5b, 5d, 5e, 5f	Flow	Χ			
	,	and Ground Water, Withdrawals, Flow-Related Plume Changes	10.2.a	Decreased Water Quantity	Low-head hydro diversions, dams	5a, 5b				Χ	Х
			10.2.b	Decreased Water Quantity	Irrigation and municipal withdrawals	5d, 5e				Х	
			10.2.c	Decreased Water Quantity	Hatchery withdrawals	5f					
			10.3	Altered Flow Timing		5b, 5c	Flow	Χ			
			10.3a	Altered Flow Timing	Dams	5b					Х
			10.3.b	Altered Flow Timing	Land use	5c				Χ	
		Ormadia della l	11.1	Impaired abundance and diversity (targeted fishing)	Consumptive, targeted fishery	7a	Harvest				Х
11	Population Diversity	Genetic drift, loss of genetic diversity, artificall selection by hatchery personnel interbreeding	11.2	Impaired abundance and diversity (non- targeted fishing)	Gill net fisheries targeted at other species	7b	Harvest	Χ			
		nationary personner interpreeding	11.3	Impaired productivity and diversity	Stray hatchery fish interbreeding with wild fish	7c				X	